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THE DIPTEROUS GENUS SYMPYCNUS LOEW IN NORTH AMERICA AND THE WEST INDIES

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Buffalo, New York

(Continued from page 47)

SYMPYCNUS PUGIL Wheeler

Proc. Calif. Acad. Sci., Ser. 3, Zoöl., Vol. ii, 51, 1899. California; Washington.

Length, 2.5 mm. Face gray-pollinose; front dull green; palpi small, white-pollinose with a white bristle at tip; antennæ black, third joint small; lower orbital cilia white; thorax, scutellum, and abdomen dull metallic green, the former with thin gray pollen; abdomen a little yellow at base, its venter yellow; hypopygium large; coxæ, femora and tibiæ yellow; hind femora sometimes dark above; fore tarsi (Fig. 37) black from tip of first joint; middle tarsi (Fig. 38) yellow with tip of first and whole of last four joints black; hind tarsi (Fig. 39) black from tip of first joint; joints of fore tarsi as 24-6-5-5-6; of middle ones as 28-15-12-5-5; joints of posterior pair as 20-20-13-10-7; fore pulvilli much enlarged; wings narrowed at base; fourth vein ending in apex of wing; last section of fifth vein as 22, cross-vein as 17; calypters, their cilia and the halteres yellow.

Sympycnus pulvillus Van Duzee, new species

Male. Length, 2 mm. Face silvery white, narrowed below; front brown; occiput green, dulled with white pollen; antennæ (Fig. 18) black, third joint as long as wide, pointed at tip; lateral and inferior orbital cilia white.

Dorsum of thorax green with only a little gray pollen; pleuræ more blackish, with white pollen, depressed space before the scutellum quite conspicuous; abdomen green with coppery reflections on the base of the segments beyond second, its hair black; hypopygium (Fig. 20) small, inconspicuous, black, with very small, black appendages.

Coxæ black with yellow tips; fore coxæ with white hair; hair on middle and hind ones and bristles on posterior pair yellow; fore femora greenish black with yellow tip, their lower surface with several long hairs and two bristles near tip; middle femora wholly yellow; hind femora yellow with apical third metallic black, the black extending along upper edge nearly to base; all tibiæ yellow,

posterior ones brown on apical third; bristles of middle and hind tibiæ strong; fore tarsi (Fig. 19) yellow with rather long hair, last joint black, a little flattened and widened, their pulvilli white, each a little smaller than the fifth joint; middle tarsi brown almost to base, hind ones wholly black; joints of fore tarsi as 16-6-6-5-5; fifth joint as 3 wide and pulvilli as 4 long; joints of middle tarsi as 22-11-10-6-6; of posterior ones as 19-16-11-7-7. Calypters, their cilia and the halteres yellow, the former with a black tip.

Wings grayish, a little narrowed toward their root; last section of fourth vein a little bent before basal third, its tip before the apex of wing; last section of fifth vein as 34, cross vein as 11.

Described from five males; two were taken by J. M. Aldrich at Tennessee Pass, Colorado, holotype July 11, at 10,240 feet elevation, the paratype July 23, 1917; three paratypes were taken by the author at Mill Valley, Marin County, California, March 25, 1926. Type in the United States National Museum.

The Tennessee Pass paratype may represent another species; it differs from the other type in having the fore coxæ almost wholly yellow, fore femora less blackened; the fore tarsi are missing, but the joints of middle and hind tarsi are in about the same proportion as in holotype. The Mill Valley paratypes are in such shape as to conceal the hypopygial appendages, the abdomen appearing obtusely pointed at tip; in one there is a slender, black lamella showing, which is fringed with hair. The drawing of the antena is from a Mill Valley paratype and the hypopygium from the holotype.

Sympycnus setosus Van Duzee, new species

Male. Length, 3 mm. Face silvery white, narrow below; palpi brown; front blackish with gray pollen; antennæ (Fig. 26) black or brown, third joint as long as wide.

Thorax blackish with purple reflections, dulled with gray pollen; acrostichal bristles represented by several very minute hairs; abdomen cylindrical, reddish coppery with blue or purple bands at base of segments, its hairs minute, black; hypopygium colored like the abdomen, its lamellæ small, white with two black filaments or bristles which are twice as long as the lamellæ and extend the length of the lamellæ beyond them.

Coxæ black, anterior pair with extreme tip yellow, front surface with very small, black hairs and several black bristles at tip; trochanters, femora and tibiæ yellow; fore tibiæ without bristles; middle ones with two rather small ones; hind tibiæ with several very small bristles; fore and middle tarsi yellow, a little darker at tip; hind tarsi (Fig. 27) black with first joint yellow at base, third joint thick

with a stout bristle at tip and several smaller ones on one side, first joint with small, erect spines below, these are not much more than stout hairs and are continued on the next joint, but are still more hair-like; fore pulvilli a little enlarged; fore and middle tarsi plain; joints of fore tarsi as 23-10-6-5-5; of middle ones as 38-12-7-5-6; joints of posterior pair as 25-21-10-9-7, bristle at tip of third joint as 6. Calypters whitish at base, black at tip with black cilia; halteres yellow.

Wings grayish. They are crumpled and broken in both type specimens.

Described from two males, taken by the author June 11, 1915, at Victor, Colorado, at about 10,000 feet elevation. Type in the author's collection.

This is something like calcaratus, new species, in the form and color of the hypopygial lamellæ, but the lamellæ are very long in that species and very short in this; the abdomen in calcaratus is enlarged below at tip in this cylindrical and slightly tapering to the tip; the third antennal joint is smaller in this and hind tarsi much more spiney, especially the third joint.

SYMPYCNUS TERTIANUS Loew

Monog., North American Diptera, Vol. ii, 187, 1864. Alaska.

Male. Length, 2.5 mm. Face grayish; palpi and first two antennal joints yellow; third antennal joint black, rounded; thorax and abdomen grayish green, rather dull; thorax without lines; posterior margin of pleuræ pale yellow; venter of abdomen wholly yellow; outer lamellæ lancet-shaped, of rather dark color; coxæ, femora and tibiæ pale yellow; tarsi blackish from tip of first joint; joints of fore tarsi of decreasing length in the female, in male the third and fourth joints are of nearly equal length; joints of middle tarsi of decreasing length in both sexes; first joint of hind tarsi a little shorter than second and in the male the third joint is somewhat shorter than fourth, fourth with longer hairs at tip; wings much narrowed at base; fourth vein ends a little before the apex of the wing; cross vein at the middle between root and apex of wing.

Sympycnus thoracicus Van Duzee, new species

Male. Length, 2.5 mm. Eyes contiguous, reducing the face to a very narrow line of white on upper half; front black with white pollen, narrow; antennæ black, third joint very small, triangular.

Dorsum of thorax and scutellum very bright green, the former with golden reflections; pleuræ brown, largely yellowish; abdomen cylindrical, black with first and second segments reddish yellow, its hairs yellow, those on venter as long as thickness of abdomen; hypopygium (Fig. 6) black, small, its outer lamellæ long and narrow, black; also a pair of small, hook-like inner appendages.

Coxæ, femora, tibiæ and tarsi yellow, last joint of middle tarsi black; all tarsi plain, except that the fore tarsi are very slender and have long hair on all joints, many of them three times as long as diameter of the joint, their pulvilli very large; joints of fore tarsi as 25-15-8-6-6; of middle ones as 28-15-12-9-7; joints of posterior ones as 18-23-14-9-6. Calypters yellow with black tips and cilia; halteres yellow.

Wings grayish; third and fourth veins parallel and a little arched, tip of fourth back of apex of wing; last section of fifth vein as 27, cross vein as 17; anal angle of wing prominent.

Described from one male taken at St. Vincent, West Indies, at 1500 feet elevation. Type No. 33, Arkansas University collection.

Sympycnus tripilus Van Duzee, new species

Male. Length, 2-2.5 mm. Face silvery white, narrow below, its sides parallel on lower two-thirds; palpi small yellow; proboscis yellowish brown; front black in middle, shining green on sides; antennæ (Fig. 21) black, third joint large, nearly twice as long as wide, rounded at tip; lower orbits nearly bare, a few black cilia above.

Thorax metallic brown with green reflections and brown pollen; acrostichal bristles rather long, in a single row; pleuræ white-pollinose, its posterior edge yellow; abdomen brown above, venter, most of second segment and sides of others yellow; hairs on dorsum black, bristles on sides of first segment yellow; hypopygium greenish black, its outer appendages narrow, short, yellow.

All coxæ yellow; fore coxæ with a few small yellow hairs, these become longer and more bristle-like toward the tip; femora and tibiæ yellow, posterior femora and tibiæ more or less brown at tip; fore tibiæ without bristles, middle ones with three, hind tibiæ with several rather small bristles; fore and middle tarsi yellow at base, brown apically, hind ones wholly brown; middle tarsi (Fig. 22) with three long, curved hairs on anterior surface of second joint, and a short, straight one near tip, first joint with several very small spines, second and third joints with a small spine at tip, third and fourth joints each with a long hair, fifth with long hairs above, but these are not longer than in some other species; joints of fore tarsi as 19-13-8-6-5; of middle ones as 32-10-7-6-5; joints of posterior pair as 15-20-12-8-7. Calypters, their cilia and the halteres yellow.

Wings grayish; last section of fourth vein straight, nearly parallel with third, ending in the apex of the wing; last section of fifth vein as 25, cross vein as 9; wing narrowed at base.

Female. Face white, wide; proboscis yellow; base of hind tarsi yellow; abdomen more brown or yellowish brown; otherwise about as in the male. Sometimes the antennæ are brown or yellowish brown.

Described from eleven males and four females, taken by the author, April 15, 1915, in San Diego County, California, on the edge of the Colorado Desert. Type in author's collection.

Sympycnus varipes Aldrich

Biologia, Diptera, Vol. i, 344, 1901. Mexico.

Male. Length, 2.6 mm. Face and front brown pollinose; antennæ black, short; dorsum of thorax opaque gray with a brown, median line and the bristles inserted in brown dots; scutellum bright blue; abdomen bronze green with anterior part of each segment purplish, abdomen without yellow; fore coxæ, all femora and tibiæ yellow, tip of hind femora and tibiæ and whole of hind tarsi blackish; fore tarsi yellow with last joint black and enlarged; middle tarsi yellow with tips of first four joints and whole of last joint blackish; middle coxæ with white hairs in front, hind ones with one blackish bristle; fore pulvilli enlarged; first and second joints of hind tarsi of nearly equal length; wings grayish; moderately narrowed at base; fourth vein ending in apex of wing.

Key to Males of the Species of the Subgenus Calyxochætus

1. Fore tibiæ considerably incrassated; second joint of fore tarsi with a long slender bristle or hair at tip 2
— Fore tibiæ not or but little incrassated 3
2. Arista quite thick, gradually, but considerably enlarged toward tip; Figs. 43-46 (New England States; New York; Pennsylvania; New Jersey; Ontario) ..... *fortunatus* Loew
— Arista slender with a conspicuous, lamella at tip; Figs. 47-49 (California) ..... *vegetus* Wheeler
3. Fourth joint of fore tarsi distinctly longer than third 4
— Fourth joint of fore tarsi shorter than third 5
— Fore tarsi with third and fourth joints of nearly equal length 7
4. Arista plain; fourth joint of fore tarsi with hooked hairs or bristles above; Figs. 50-52 (Maine; Massachusetts; New York; Pennsylvania; Indiana) ..... *frontalis* Loew
— Arista gradually but considerably enlarged on apical fifth; Figs. 53-55 (Utah) ..... *distortus* new species
— Arista with a large, nearly round lamella at tip; Figs. 56-58 (Colorado; Alaska) ..... *cilifemoratus* Van Duzee
5. Fourth joint of fore tarsi about half as long as third (California ..... *æreas* Wheeler
— Fourth joint of fore tarsi much more than half as long as third 6
6. Second joint of middle tarsi with several long hairs on basal half; Figs. 59-61 (Maine; Ontario) ..... *luteipes* Van Duzee

— Tarsi plain, without unusual hairs (Kansas)..... *abbreviatus* Van Duzee

7. Third joint of middle tarsi a little longer than fifth, fourth and fifth of equal length; Figs. 66-69 (Illinois; Wisconsin; Missouri; New York; Ontario)..... *nodatus* Loew

— Third and fourth joints of middle tarsi each much longer than fifth; Figs. 62-65 (California)..... *clavicornis* new species

— Third and fourth joints of middle tarsi each much shorter than fifth..... 8

8. Apical enlargement of arista slight, occupying only apical third; Figs. 70-72 (Idaho; California)..... *sobrinus* Wheeler

— Enlargement of arista quite conspicuous, occupying most of apical half; Figs. 73-75 (California)..... *hastatus* new species

SYMPYCNUS (CALYXOCHÆTUS) ABBREVIATUS Van Duzee

Canadian Entomologist, Vol. xlix, 341, 1917. Kansas.

Male. Length, 3 mm. Face narrow, silvery white; palpi yellowish; proboscis brown; front blue with thick brown pollen; antennæ brown, third joint large, nearly as wide as long, somewhat square with rounded corners; dorsum of thorax brown, nearly opaque; abdomen yellowish at base, black from hind margin of second segment, bronzed at tip; coxæ yellow, anterior ones with minute yellow hairs and yellow bristles at tip; middle and hind coxæ with a black bristle on outer surface; all femora and tibiæ yellow, hind femora and tibiæ darkened at tip, the latter with a rather long, slender bristle near basal third; fore tarsi yellow, darkened at tip, first joint not longer than thick, second more than half as long as tibia, third a little longer than fourth, which is scarcely longer than fifth; hind tarsi black from tip of first joint, which is shorter than second; wings grayish, rather narrow at base; veins yellowish brown, costa darker; fourth vein ending in apex of wing; last section of fifth vein three times as long as cross vein.

SYMPYCNUS (CALYXOCHÆTUS) CILIFEMORATUS Van Duzee

Proc. U. S. National Museum, Vol. lxiii, Art. 21, 12, 1924. Colorado; Alaska.

Male. Length, 2.5-3 mm. Face narrow below, covered with white pollen; front blackish or blue with brown pollen; antennæ (Fig. 56) black; thorax bronze brown with brown pollen and blue reflections; abdomen dark metallic green, bristles on first segment yellow; hypopygial appendages small, black; all coxæ, femora and fore and middle tibiæ yellow, apical half of hind femora more or less blackish; hind tibiæ blackish, sometimes yellowish at base; fore coxæ and fore and middle tibiæ with yellow hairs; fore tarsi (Fig. 57) and middle tarsi (Fig. 58) black from tip of first joint; hind tarsi wholly black; joints of fore tarsi as 3-29-8-11-7; of middle ones as 34-14-

11-10-5; those of posterior pair as 18-23-14-11-8; wings narrowed at base; third and fourth veins a very little convergent at tips, fourth ending just before the apex of wing; last section of fifth vein as 31, cross vein as 10; calypters, their cilia and the halteres yellow.

Sympycnus (Calyxochætus) clavicornis Van Duzee new species

Male. Length, 2.5 mm. Face narrow, eyes touching below, black with white pollen; front blackish; palpi black; antennæ (Fig. 62) brown, first joint long, third as long as first, slightly more than half as wide as long, tip broadly rounded, arista inserted at tip of third joint, gradually much widened on apical fourth.

Thorax and abdomen dark brown, shining, dorsum of thorax with brown pollen, which leaves darker lines; scutellum a little bluish; posterior edge of pleuræ partly yellowish; sides of second abdominal segment wholly yellow, remaining segments slightly tinged with green; hypopygium (Fig. 65) brown, with very small, triangular, yellow lamellæ, a pair of large inner lamellæ and a long, smooth, curved, yellow central organ; hairs of abdomen partly yellowish.

Coxæ, femora and tibiæ yellow; fore coxæ with a few white hairs; middle and hind coxæ a little darkened on outer surface; nearly apical fourth of hind femora brown; hind tibiæ more or less brownish, especially at tip and with several long pale hairs below near tip; fore tarsi (Fig. 63) brown from tip of second joint; middle tarsi (Fig. 64) brown at tip, second joint enlarged and with several long, delicate hairs below; hind tarsi wholly blackish; joints of fore tarsi as 4-21-9-10-7; of middle ones as 30-11-10-8-5; joints of posterior pair as 20-23-14-11-7. Calypters, their cilia and halteres yellow.

Wings grayish; third and fourth veins nearly straight and parallel, fourth ending distinctly before the apex of wing; last section of fifth vein 45, cross vein ten-fiftieths of a millimeter long.

Female. Face moderately wide, covered with white pollen; front blue-black; palpi brown; third antennal joint nearly round in outline; lower orbital cilia white; abdomen a very little yellowish on the sides at base; joints of fore tarsi as 20-15-9-6-6; of middle ones as 33-12-10-8-7; those of posterior pair as 21-21-14-9-9; wings with third and fourth veins a little farther apart than in male, fourth ending in apex of wing; last section of fifth vein 48, cross vein 14; legs almost wholly yellow, tarsi a little brownish.

Described from two males and one female, taken by J. M. Aldrich, July 23, 1911, at Mono Lake, California. Type in the United States National Museum.

Sympycnus (Calyxochætus) distortus Van Duzee new species

Male. Length, 2mm. Antennæ (Fig. 53) brown, third joint rounded, but little longer than wide, arista as long as fore tarsi, apical fifth gradually but considerably enlarged.

Thorax and abdomen brown, the former with a little brown pollen; second segment of abdomen largely yellow; hypopygium about as in *clavicornis,* rounded above with small, triangular, yellowish outer lamellæ, which are not longer than wide, inner appendages rounded.

Coxæ, femora and tibiæ yellow; tips of posterior femora and tibiæ brownish; fore coxæ with a few short white hairs; hind femora with black hairs below, which are short at base, long near tip; fore tarsi (Fig. 54) yellow with last joint brown, third joint shorter than fourth, which is curved and has a few long hairs; middle tarsi (Fig. 55) yellow with last three joints brown, first joint with one long hair near tip, second with about four long hairs on basal half; hind tarsi wholly brown; joints of fore tarsi as 3-23-9-13-7; of middle ones as 30-13-12-9-5; joints of posterior pair as 20-24-14-10-8. Calypters, their cilia and the halteres yellow.

Wings grayish; third and fourth veins nearly parallel, but bent back and slightly approaching each other at tip, fourth ending just in front of apex of wing; cross vein about as 6, last section of fifth vein as 35.

Described from one male, taken by J. M. Aldrich, July 6, at Soldier Summit, Utah, at 7454 feet elevation. Type in the United States National Museum.

Sympycnus (Calyxochætus) fortunatus Wheeler

Proc. Calif. Acad. Sci., Ser. 3, Zoöl., Vol. ii, 52, 1899. Northeastern States; Ontario.

Male. Length, 3.3 mm. Face very narrow, light gray-pollinose; front violet; antennæ (Fig. 43) dark brown; thorax dull black, covered with brown pollen, except a median vitta and spots above the humeri; scutellum violet; abdomen brownish black, base of first, second and third segments and the venter pale yellow; all coxæ and femora pale yellow; fore coxæ with silvery white hairs; posterior femora brown on apical third; all tibiæ pale yellow, tips of hind ones blackish; fore tibiæ and tarsi (Fig. 44), the tarsi black from middle of second joint; middle tarsi (Figs. 45 and 46) blackish from tip of first joint; hind tarsi wholly black; length of fore tibiæ as 43, joints of fore tarsi as 5-25-18-7-7; of middle tarsi as 43-11-5-8-7; joints of posterior pair as 23-29-15-10-7; wings much narrowed at base with a lobe basally from tip of fifth vein; third and fourth veins nearly parallel, but slightly arched; last section of fifth vein as 40, cross vein as 10.

Sympycnus (Calyxochætus) frontalis Loew

Neue Beit., Vol. viii, 67, 1861; Monog. N. Am. Diptera, Vol. ii, 188, 1864. Northeastern States.

Male. Length, 3 mm. Face very narrow below, covered with white pollen so as to nearly conceal the blue ground color; front bright violet; antennæ (Fig. 50) black or brown; dorsum of thorax green or blue with thick grayish brown pollen; abdomen black or greenish black with more or less yellow, especially on the sides; posterior margin of pleuræ, all coxæ, femora, tibiæ and tarsi yellow, tarsi more or less infuscated; fore tarsi (Fig. 51) with its joints as 4-20-9-14-6; middle tarsi (Fig. 52) with its joints as 40-14-4-4-7; those of posterior tarsi as 19-24-14-11-6; wings with third and fourth veins nearly straight and parallel, fourth ending in apex of wing; last section of fifth vein as 32, cross vein as 13; calypters, their cilia and the halteres yellow.

Sympycnus (Calyxochætus) hastatus Van Duzee
new species

Male. Length, 3 mm. Face narrow, white; front purple, shining, except a narrow margin of white pollen along the orbits and above the antennæ; antennæ (Fig. 73) black, third joint more brown, rounded at tip, arista rather short, its first two joints as 22-28, third joint widened before its middle, but pointed at tip; lower orbital cilia white.

Thorax green, dull, scutellum blue. Abdomen dull green, second and third segments yellow, except a median dorsal line, which widens at the sutures, its hair black; hypopygium black, pointed below, with a pair of short, pale lamellæ, fringed with black hair.

Fore coxæ yellow with minute yellow hair; middle and hind coxæ black with yellow tips; femora and tibiæ yellow, posterior femora on apical half, especially above, and extreme tips of hind tibiæ brown; fore tarsi (Fig. 74) yellow, darker toward tip; middle tarsi (Fig. 75) yellowish brown; posterior tarsi black from tip of first joint; joints of fore tarsi as 4-29-14-14-7; of middle ones as 50-12-4-5-8; joints of posterior pair as 22-27-15-10-5. Calypters yellow with black tip and pale cilia; halteres yellow.

Wings grayish; third and fourth veins nearly parallel, the latter ending in apex of wing; cross vein 12, last section of fifth vein 43-fiftieths of a millimeter long; sixth vein short; wing not much narrowed at base.

Described from one male taken by the author, April 15, 1915, in San Diego County, California, on the edge of the Colorado Desert. Type in the author's collection.

SYMPYCNUS (CALYXOCHÆTUS) LUTEIPES Van Duzee

Psyche, Vol. xxx, 63, *tarsalis,* Curran, Canadian Entomologist, Vol. lvi, 108, 1924. Maine; New York; Ontario.

Male. Length, 2 mm. Face narrow, white; front dark blue; antennæ (Fig. 59) black or brown; dorsum of thorax brown, a little

dulled with brown pollen; scutellum blue; posterior edge of pleuræ yellow; abdomen with yellow on the sides; all coxæ, femora and fore and middle tibiæ yellowish; tips of hind femora and the hind tibiæ more brown or black; fore tarsi (Fig. 60) yellow, blackened from tip of third joint; middle tarsi (Fig. 61) black from tip of first joint; hind tarsi wholly black, shorter than their tibia; joints of fore tarsi as 4-16-10-6-5; of middle ones as 31-10-9-8-5; those of posterior pair as 14-16-9-8-6; wings brownish gray, narrowed at base; last section of fifth vein nearly four times as long as cross vein; calypters and halteres yellow, former with black cilia.

Sympycnus (Calyxochætus) nodatus Loew

Loew's Cent., Vol. ii, No. 68, Berl. Ent. Zeit., Vol. vi, 215, 1862; Monog. North American Diptera, Vol. ii, 191, 1864. Arkansas; New York; Illinois; Missouri; Wisconsin; Ontario.

Male. Length, 2.5-3 mm. Face very narrow, white; front brown with a little gray pollen; palpi small, yellow; antennæ (Fig. 66) brown, first joint yellow below or wholly yellow; dorsum of thorax brownish gray; posterior margin of pleuræ yellow; scutellum usually blue; abdomen metallic black, yellow on sides and venter; hypopygial appendages black, outer lamellæ yellowish; coxæ, femora and tibiæ yellow; fore tarsi (Fig. 67) yellow, apical joints black; middle tarsi (Figs. 68 and 69) black from tip of first joint; hind tarsi with last four joints black; joints of fore tarsi as 4-18-10-8-8; of middle ones as 45-15-7-5-6; of posterior pair as 20-29-15-11-8; wings narrowed at base, hind margin a little sinuous on basal half; last section of fourth vein straight, ending in apex of wing, nearly parallel with third, but third bent back a little so as to approach fourth at tip; last section of fifth vein as 42, cross vein as 13; calypters yellow with black tip, its cilia yellow, but appearing blackish in certain lights; halteres yellow.

Sympycnus (Calyxochætus) oreas Wheeler

Proc. Calif. Acad. Sci., Ser. 3, Zoöl., Vol. ii, 55, 1899. California.

Male. Length, 3 mm. Face very narrow, gray pollinose; proboscis and palpi brown; front green; antennæ blackish, third joint large, oval, evenly rounded, arista basal; long, tapering to a point; thorax and scutellum green, thickly covered with yellow pollen, especially in front, leaving a median shining vitta; abdomen dull blackish, sides and venter partly yellow; fore coxæ yellow with white hairs, middle and hind coxæ blackish; femora and tibiæ yellow, apical half of hind femora and tips of their tibiæ blackened; fore tibiæ dis-

tinctly swollen; all tarsi black from tip of first joint; first joint of fore tarsi very short, second and third much longer and subequal, fourth and fifth subequal and about half as long as third, third and fourth joints fringed above with long hair; first joint of hind tarsi distinctly broader and shorter than second; wings much narrowed at base, somewhat truncate at apex; last section of fourth vein parallel with third on its apical half, ending in or a little before apex of wing; last section of fifth vein more than three times as long as cross vein; calypters yellow with brown border and yellow cilia; halteres yellow.

Sympycnus (Calyxochætus) sobrinus Wheeler

Proc. Calif. Acad. Sci., Ser. 3, Zoöl., Vol. ii, 54, 1899. Idaho; California.

Male. Length, 2.5-3 mm. Face rather broad, white; front green; antennæ (Fig. 70) black; thorax greenish, nearly opaque with brown pollen; scutellum blue; abdomen blackish, sometimes the sides yellow at base, venter yellowish; hypopygial lamellæ very smal, yellowish; fore coxæ yellow with a few yellow hairs and bristles; middle and hind coxæ mostly black; femora and tibiæ dark yellow, hind femora blackish apically; tarsi infuscated from tip of first joint; fore tarsi (Fig. 71) with their joints as 4-21-13-12-8; middle tarsi (Fig. 72) with the joints as 45-15-4-6-9; joints of posterior tarsi as 21-26-15-10-9; wings with anal angle prominent; third and fourth veins nearly parallel, but bent backward toward their tips; last section of fifth vein as 44, cross vein as 12; fourth vein ending in the apex of the wing; calypters, their cilia and the halteres yellow, sometimes the cilia of the calypters is more brown.

Sympycnus (Calyxochætus) vegetus Wheeler

Proc. Calif. Acad. Sci., Ser. 3, Zoöl., Vol. ii, 53, 1899. Idaho; California; Oregon.

Male. Length, 2.5-3.3 mm. Face very narrow, white-pollinose; front violet; antennæ (Fig. 47) black; palpi blackish; thorax dull green or blackish with coppery reflections; scutellum blue; abdomen bronze-black with yellow on sides and venter; hypopygial lamellæ small, yellowish brown; coxæ, femora and fore and middle tibiæ yellow; tips of hind femora and whole of hind tibiæ brown; fore tibiæ and tarsi (Fig. 48); middle tarsi (Fig. 49), black from tip of first joint; hind tarsi wholly black; joints of fore tarsi as 4-22-17-8-7; of middle tarsi as 39-15-4-5-6; of posterior pair as 25-27-16-11-8; wings narrowed at base; third vein greatly bent backward at tip, parallel with fourth, which ends in apex of wing; last section of fifth vein as 55, cross vein as 12; calypters, their cilia and the halteres yellow.

Explanation of Plate 1

North American species of Sympycnus

Fig. 1. cuprinus Wheeler, antenna of male.

Fig. 2. lineatus Loew, antenna of male.

Fig. 3. breviventris n. sp., antenna of male.

Fig. 4. breviventris, fore tarsus of male.

Fig. 5. breviventris, hypopygium of male.

Fig. 6. thoracicus n. sp., hypopygium of male.

Fig. 7. clavatus V. D., antenna of male.

Fig. 8. clavatus, fore tarsus of male.

Fig. 9. lævigatus n. sp., antenna of male.

Fig. 10. lævigatus, fore tarsus of male.

Fig. 11. inæqualis n. sp., antenna of male.

Fig. 12. inæqualis, hypopygium of male.

Fig. 13. caudatus V. D., antenna of male.

Fig. 14. caudatus, fore tarsus of male.

Fig. 15. latitarsis n. sp., antenna of male.

Fig. 16. latitarsis, fore tarsus of male (top view).

Fig. 17. latitarsis, fore tarsus of male (side view).

Fig. 18. pulvillus n. sp., antenna of male.

Fig. 19. pulvillus, fore tarsus of male.

Fig. 20. pulvillus, hypopygium of male.

Fig. 21. tripilus n. sp., antenna of male.

Fig. 22. tripilus, mid tarsus of male.

Fig. 23. calcaratus n. sp., antenna of male.

Fig. 24. calcaratus, hind tarsus of male.

Fig. 25. calcaratus, hypopygium of male.

Fig. 26. setosus n. sp., antenna of male.

Fig. 27. setosus, hind tarsus of male.

Fig. 28. globulicauda n. sp., antenna of male.

Fig. 29. globulicauda, hind tarsus of male.

Fig. 30. globulicauda, hypopygium of male.

Fig. 31. fasciventris V. D., antenna of male.

Fig. 32. fasciventris, hind tarsi of male.

Fig. 33. mercedus Wheeler, antenna of male.

Fig. 34. mercedus Wheeler, fore tarsus of male.

Fig. 35. mercedus, hind tarsus of male (side view).

Fig. 36. mercedus, hind tarsus of male (top view).

Fig. 37. pugil Wheeler, fore tarsus of male.

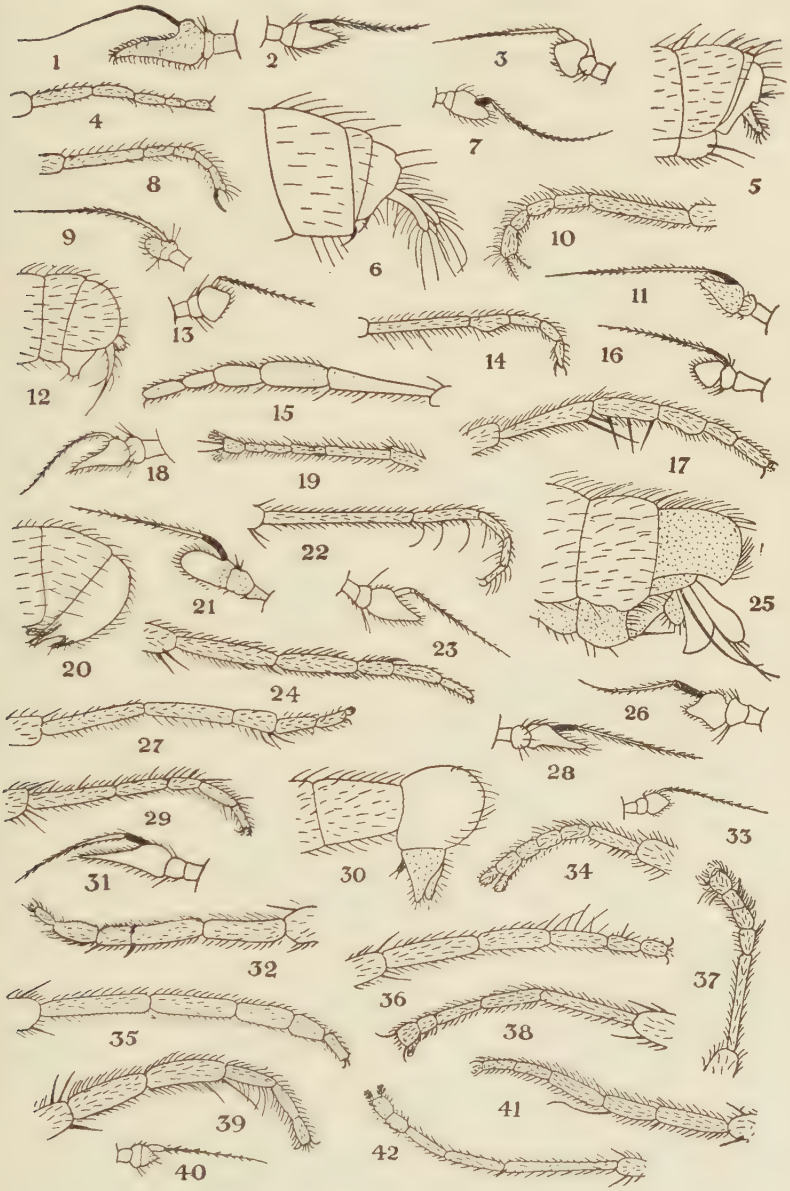
Fig. 38. pugil, mid tarsus of male.

Fig. 39. pugil, hind tarsus of male.

Fig. 40. aldrichi n. sp., antenna of male.

Fig. 41. aldrichi, hind tarsus of male.

Fig. 42. montanus n. sp., mid tarsus of male.



M. C. Van Duzee, Plate I

Explanation of Plate 2

North American species of Sympycnus, subgenus Calyxochætus

Fig. 43. fortunatus Wheeler, antenna of male.

Fig. 44. fortunatus, fore tibiæ and tarsus of male.

Fig. 45. fortunatus, mid tarsus of male (top view).

Fig. 46. fortunatus, last four joints of mid tarsus (bottom view).

Fig. 47. vegetus Wheeler, antenna of male.

Fig. 48. vegetus, fore tarsus of male.

Fig. 49. vegetus, mid tarsus of male.

Fig. 50. frontalis Loew, antenna of male.

Fig. 51. frontalis, fore tarsus of male.

Fig. 52. frontalis, mid tarsus of male.

Fig. 53. distortus n. sp., antenna of male.

Fig. 54. distortus, fore tarsus of male.

Fig. 55. distortus, mid tarsus of male.

Fig. 56. cilifemoratus V. D., antenna of male.

Fig. 57. cilifemoratus, fore tarsus of male.

Fig. 58. cilifemoratus, mid tarsus of male.

Fig. 59. luteipes V. D., antenna of male.

Fig. 60. luteipes, fore tarsus of male.

Fig. 61. luteipes, mid tarsus of male.

Fig. 62. clavicornis n. sp., antenna of male.

Fig. 63. clavicornis, fore tarsus of male.

Fig. 64. clavicornis, mid tarsus of male.

Fig. 65. clavicornis, hypopygium male.

Fig. 66. nodatus Loew, antenna of male.

Fig. 67. nodatus, fore tarsus of male.

Fig. 68. nodatus, mid tarsus of male (top view).

Fig. 69. nodatus, mid tarsus of male (side view).

Fig. 70. sobrinus Wheeler, antenna of male.

Fig. 71. sobrinus, fore tarsus of male.

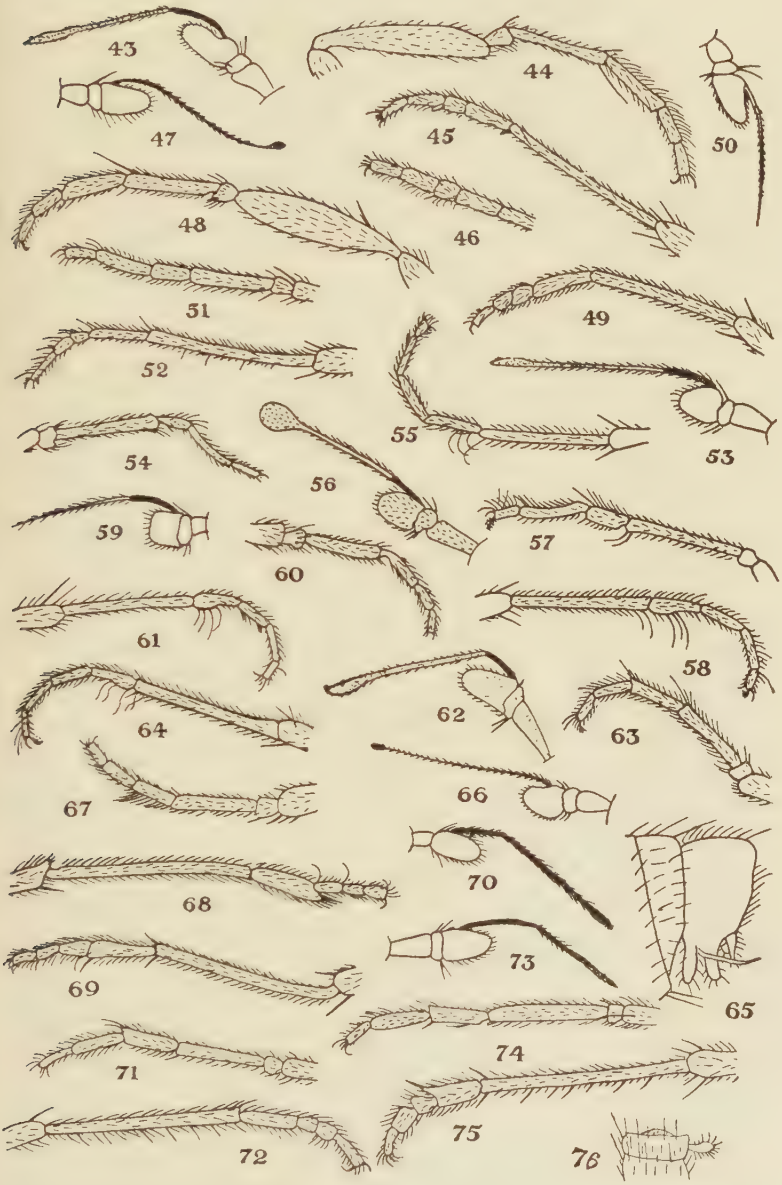
Fig. 72. sobrinus, mid tarsus of male.

Fig. 73. hastatus n. sp., antenna of male.

Fig. 74. hastatus, fore tarsus of male.

Fig. 75. hastatus n. sp., mid tarsus of male.

Fig. 76. Sympycnus canadensis V. D., hypopygium of male.



M. C. Van Duzee, Plate II

A NEW BEDUNIA (HEMIPTERA)

BY E. P. VAN DUZEE

From Professor Roland Thaxter I have recently received for study three interesting exotic Hemiptera, one of which proves to be undescribed. The other two are *Microvelia albolineolata* Bueno, taken at the type locality, Fort De Kock, Sumatra, and *Melanolestes argentinus* Berg, from Santa Catalina, Llavallol, Argentina. The latter does not entirely answer to Berg's description, so the determination is in some doubt. The Lygæid is:

Bedunia adusta Van Duzee, n. sp.

Near *segmentata*, but apparently distinct. Black, posterior lobe of pronotum, scutellum and elytra marked with pale castaneous; antennæ, rostrum and legs honey-yellow. Length, 6 mm.

Head a little longer than pronotum; tylus produced for nearly half its length before the cheeks. Vertex finely rugosely punctate, the lateral areas exterior to the arcuate impressed lines minutely punctate and sparsely dotted with pale hairs. Antennæ, Seg. II a little the longest; I, III and IV subequal. Rostrum reaching on to first ventral segment. Pronotum a fifth wider at base than long; anterior lobe a little longer than posterior, finely punctate, collum flat, with one row of punctures, area of callosities large, indefinite, nearly impunctate; posterior lobe and scutellum coarsely punctate; clavus with four rows of coarse punctures, corium with two rows of punctures next the suture, one along the radial vein and a few scattering punctures toward apex. Anterior femora much incrassate, with a double row of small teeth on apical half; segment I of hind tarsi three times as long as II and III together.

Color black, tinged with castaneous on apex of tylus, acetabulæ, coxæ and venter; antennæ and legs deep honey-yellow or ochraceous; antennal segments III and IV slightly darker at base; rostrum and base of femora paler; posterior lobe of pronotum, collum and scutellum with a castaneous tinge, the former with a vitta either side the middle of disk and two basal spots between them, and the raised arc of the scutellum, paler castaneous; tip of scutellum, basal half of costa, a spot before its apex and two obscure discal vittæ, the inner short, ochraceous; membrane short, paler at base, attaining sixth tergite; tip of rostrum black.

Holotype, male, and allotype, female, taken at Wai-Ai, Solomon Islands, received from Dr. Roland Thaxter under the number 2959. On the female the pale markings are more obscure (Holotype, No. 2975, Mus. Calif. Acad. Sci.).

ON SOME CHILOPODS IMMIGRANT AT HAWAII

BY RALPH V. CHAMBERLIN

University of Utah, Salt Lake City

The present paper records fifteen species of chilopods taken chiefly from plants or the soil about them in baggage and cargo of ships arriving at Hawaii. These were submitted to me for identification by the Plant Quarantine and Control Administration of the United States Department of Agriculture. Most were taken during the year 1928.

The types of the five species described as new are in the writer's collection.

SCOLOPENDROMORPHA

1. PARACRYPTOPS WEBERI Pocock

A single specimen of this unusual species was taken in soil from Singapore, Straits Settlement, at Honolulu on March 10, 1930.

2. **Cryptops navis** Chamberlin, new species

Head overlapped by first dorsal plate; without sulci. Antennæ in holotype consisting of fifteen (right) and seventeen (left) articles.

First dorsal plate without transverse or longitudinal sulci. Prehensors with claws of normal length; anterior margin of prosternum smooth, slightly convex on each side of the median indentation.

Paired dorsal sulci present from the third dorsal plate, inclusive, caudad.

Last ventral plate with caudal margin a little convex, the posterior corners well rounded and the sides diverging cephalad.

Last coxæ caudally truncate; pores small, moderate in number, the porose area lying along the ventral plate the end of which it reaches, but failing to reach the caudal margin of coxæ and dorsal plate by a wide area; caudal margin of coxæ setose and one or two setæ just cephalad of margin.

Anterior spiracles rather large, elliptic.

Femur and tibia of anal legs subseriately and subdensely setose ventrally and mesally, the setæ passing into finer, ordinary hairs on outer surface. Metatarsus with a series of five teeth; first tarsal joint with a series of four teeth which decrease in size distad.

Length, ad 10 mm.

Locality. One specimen intercepted at Honolulu, Hawaii, March 10, 1930, in soil from Singapore, Straits Settlement.

3. Newportia sp.

A specimen of a species of this genus was taken at Hawaii in 1928 in soil about plants in the cargo of a vessel from Panama. The anal legs are missing, making specific determination impossible.

4. **Otostigmus sinicolens** Chamberlin, new species

Body above dark brownish green, with head and first tergite abruptly light ochre yellow. Antennæ yellowish proximally, darker distally. Legs greenish, the anal pair with a light ring near distal end of fourth and fifth joint and with the distal half of the sixth and all of the seventh joint also pale.

Head smooth, without conspicuous sulci or punctæ. Antennæ composed of twenty articles of which only the first two are glabrous, the third being entirely clothed similarly to the more distal ones.

Paired sulci distinct and complete from the sixth tergite caudad. Tergites laterad of sulci finely rugose and punctate, the roughening strong on caudal plates. Between the paired sulci of median and posterior plates three secondary sulci separating off low longitudinal ridges, these being less clearly defined in the anterior region. Laterad of the paired sulci in posterior region several weakly developed longitudinal ridges also indicated.

Last dorsal plate with a deep, elongate pit on the median line just in front of the caudal margin.

Prosternum with 5 + 5 teeth of which the mesal one on each side is partly divided. The basal process of femur with three tubercles or teeth on its mesal apical slope.

Last ventral plate strongly narrowed caudad, the caudal margin mesally concave. Other ventral plates excepting the most anterior showing paired sulci over anterior border, but these in no case complete though on some of the posterior sternites continued in weak longitudinal furrows that may simulate sulci.

Two tarsal spines on about the first eight pairs of legs, on all others single excepting on the twentieth and twenty-first from which absent.

Process of anal coxæ (pseudopleuræ) pronounced, densely porose as usual excepting in a longitudinal ventral stripe which extends from caudal end of process nearly to corner of last sternite; process ending in three spines, with one spine on dorsal side a little proximad of apical group and two spines on the dorso-lateral margin near base of process.

Femur of anal legs with a ventral row of four teeth; on ectal side with three oblique rows, 2, 4, 1, and a dorsal longitudinal series of four teeth of which one is at the distal end of joint and is a little longer than the others.

Length, 42 mm.

Locality. The holotype was taken at Hawaii on specimens of *Eleocharis tuberosa*, imported from China in 1928.

5. **Otostigmus mians** Chamberlin, new species

Dorsum and legs greenish yellow, excepting the last two tergites which are abruptly lighter, more yellow; the head and antennæ a darker green.

Head smooth. Antennæ consisting of nineteen articles of which the first two are wholly glabrous and the third likewise glabrous excepting over distal third above.

Prosternum with teeth 2 + 2, each tooth, however, being partly divided, the ectal one having a denticle on its outer side at base and the inner one being partly divided at end with inner denticle the smaller.

Paired sulci beginning on fifth tergite.

Last tergite without median sulcus or pit. All tergites smooth and shining.

No complete paired sulci on any of the sternites, sulci being indicated only across anterior borders of some plates. Last ventral plate narrowed caudad, its caudal margin mesally incurved.

Two tarsal spines on the first eight pairs of legs; others, excepting the last two pairs, with one tarsal spine.

Pseudopleural processes elongate, bearing two teeth at end and a third subapical one on outer side and a single dorso-lateral one toward base. Femur of anal legs with ventral longitudinal row of four teeth and two mesal rows of three and two teeth; none at distal end of joint.

Length, 35 mm.

Locality. The holotype taken at Hawaii in 1928 on *Dioscorea* sp. from China. On this specimen one anal leg is in the initial stage of regeneration. A paratype lacking both anal legs was taken, also on *Dioscorea*, in a different lot of specimens during the same year.

6. Scolopendra subspinipes Leach

One specimen of this oriental species was taken on *Pachyrhizus* sp. from China in 1928.

Geophilomorpha

7. Mecistocephalus maxillaris Gervais

Several specimens of this species, carried widely by ships in tropical regions, were taken at Hawaii in 1928 in soil about plants from Panama.

LITHOBIOMORPHA

8. LAMYCTINUS CŒCULUS Brolemann

Several specimens of this now tropicopolitan form were taken in soil about plants from Tahiti on two dates in 1928.

9. LAMYCTES species

A specimen of uncertain species was taken in 1928 in soil about plants in baggage from Japan.

10. LAMYCTES FULVICORNIS Meinert

Taken at Hawaii April 22, 1929, in soil about plants from Los Angeles, California.

11. OABIUS PYLORUS Chamberlin

A specimen was taken April 2, 1929, in soil about chives from San Francisco, California.

12. LITHOBIUS BOREALIS Meinert

Taken November 6, 1929, in packing of orchids from England.

13. LITHOBIUS species

Specimens too young for identification were taken in 1927 and 1928 in soil about plants from China.

14. **Nipponobius sinensis** Chamberlin, new species

Head and dorsum yellow, the head lighter in front of the frontal suture; posterior legs also yellow proximally but distad of third article lighter, whitish; the other legs light yellow. Antennæ concolorous with head, the color brighter distally.

Antennæ short, distally attenuated, the twenty articles of moderate length.

Ocelli small, few, in a narrowly linear patch, in two series to be interpreted as 1 + 2, 2, with the lower series in advance of the upper, or as 1 + 3, 1.

Prosternal teeth small and pale, well separated, 2 + 2.

Coxal pores small, circular, 1, 2, 2, 2.

All posterior coxæ wholly unarmed. Ventral spines of first legs 0, 0, 0, 0, 1. Penult legs with ventral spines 0, 1, 2, 1, 0; dorsal spines 0, 0, 2, 1, 0, the claw double. Anal legs with ventral spines also 0, 1, 2, 1, 0; dorsal spines 0, 0, 2, 0, 0, the claw single.

The anal legs of male with fifth article a little swollen, with a shallow longitudinal dorsal sulcus and a dorsal crest at distal end resembling that in males of Nadabius.

Length, 7 mm.

Locality. The types, two adult males, were taken at Hawaii in 1928 on *Lillium* species imported from China.

This is the second species to become known in the genus which was established for a species (*N. migrans* Chamberlin) the types of which were taken at Philadelphia, similarly on lily bulbs, from Saitama, Japan. The present form is separated chiefly because of its larger size (7 mm. as against 5 mm.) and the fewer ocelli (1 + 3, 1 as against 1 + 3, 3.)

15. **Bothropolys migrans** Chamberlin, new species

Lateral margins of head smoothly continuous, not broken at level of posterior suture. Antennæ of moderate length.

Ocelli numerous, typically in four series; e. g., 1 + 6, 5, 4, 2.

Prosternal teeth typically 5 + 5 or 6 + 6, small and subequal, the outer end of dental line extending farther cephalad than the mesal end. Special ectal spine setiform.

Posterior angles of ninth, eleventh and thirteenth dorsal plates strongly produced, those of the seventh more weakly but distinctly produced, and those of the sixth weakly or sometimes not at all produced. Dorsal plates moderately rugose.

Anal legs with the claw single; ventral spines, 1, 1, 3, 2, 1; dorsal spines, 1, 0, 3, 1, 0. Penult legs also with claw single; ventral spines, 0, 1, 3, 2, 1; dorsal, 1, 0, 3, 1, 1. Ventral spines of first legs 0, 0, 1, 3, 2, to 0, 0, 1, 3, 1. Last four coxæ dorsally armed, the last two laterally armed; anal coxæ ventrally armed and in one specimen one penult coxa is also ventrally armed with a small spine.

Claw of female gonopods tripartite, the lobes acute; basal spines, 2 + 2.

Length, 11-14 mm.

Locality. The four type specimens were taken at Hawaii in 1928 on plants of the genus *Dioscorea* from China.

United States Bureau of Entomology

The Brookings Institution has published as No. 60 of its Service Monographs of the United States Government, a very complete account of the history, activities and organization of the Bureau of Entomology, by G. A. Weber, a book that will be appreciated by all whose interests bring them into contact with the activities of that department of the Government. In addition to an interesting historical sketch the book includes a list of the various divisions and field stations with an outline of the staff of each and the salaries paid. It will prove a useful reference book for all working entomologists.—E. P. Van Duzee.

TWO NEW COLEOPTEROUS INSECTS FROM ARIZONA

BY J. O. MARTIN

California Academy of Sciences

Genus Euryptera

The genus *Euryptera* is distinctly American, ranging from Rio de Janeiro, Brazil, through Central America, to as far north in the United States as Massachusetts. Up to the present there are twenty-six described species, of which four are recorded from the United States, the greatest development of the genus being in northern South America and Central America. A table to nineteen of the species, based on color alone, is offered by R. P. Belou in Ann. Soc. Ent. Belg., XLI, p. 339, 1897. An examination of the original descriptions of all the described species has convinced me that the species described below is new.

Euryptera cruenta Martin n. sp.

Form elongate, widest just before apex of elytra. Head black except at apex of clypeus and mouth parts which are testaceous, variously clouded with black; irregularly punctured and with semi-erect black hairs except a triangular space at base of clypeus which is impunctate. Behind the antennal insertion is a deep transverse depression which is more pronounced in this species, because of the greater development of the antennal process, than in any of our other native species. Antennæ black, extending to beyond the middle of elytra. Pronotum campanulate wider at base than long, dull sanguineous, closely punctate, with red depressed fine hairs. Scutellum black, closely punctate, with depressed black hairs. Elytra wider than pronotum just behind the base, and gradually widening to just before the apices which are separately rounded, with a distinct obtuse angle at outer side of curve, but lacking any distinct tooth such as is found at this position in *lateralis* Oliv. and many of the more tropical species. Elytra of the same color as the pronotum and with the same depressed red hairs but with smaller punctures and with three distinct costæ not as pronounced, however, as those in *huachucæ* Schffr. Underside of body black, shining, finely punctate, with black hairs which become yellow on the middle and hind coxæ; the first two joints of the abdomen more closely punctate than the last three. Length, 11 mm.; width just before apex of elytra, 4 mm.

Euryptera cruenta differs from any of our other native species in its color, vestiture, and the shape of the elytral apices.

It is nearest to *longipennis* Bates, but differs from that species in the color of the thorax, in the lack of any constriction of the sides of the elytra and in the possession of the angulation on the outer curve of the elytral apex.

Described from a single specimen taken by myself in Carr Canyon, Huachuca Mountains, Arizona, while beating oak. Type, probably a female, No. 2976, in the collection of the California Academy of Sciences.

Genus Ischnocerus

The genus *Ischnocerus* Schön, until now represented in our fauna by a single species (*infuscatus* Fabr.), is more extensively developed in the Mexican region from where the Biologia Centrali Americana lists no less than seven species. In Jordan's table [1] to these species the one described below runs directly to *infuscatus*, but is markedly different from that species.

Ischnocerus angulata Martin, n. sp.

Body piceous black, shining. Head and beak coarsely punctate; eyes oval and slightly more than one-half wider than long, distant from base of antenna by more than their major axis; front and beak to base of antennæ covered by chalky white recumbent hairs, a black spot extending from apex of thorax nearly to the eyes; antennæ ferruginous, except club which is black; male antennæ barely reaching to end of body when beak is vertical, those of the female extending to basal third of elytra. Thorax closely, coarsely, rugosely, punctate; disk with three longitudinal ridges, one, median, is separated from the lateral ones by a broad shallow sulcus; the space subtended by the summits of the lateral ridges and extending from base to apex in a shield-shaped design is covered in varying degrees of thickness by recumbent, chalky-white hairs. The remainder of the prothorax is covered with ferruginous, black and a few white hairs which present no regular pattern. Antebasal carina continuous throughout, extended backward at middle in a broad, nearly ninety degree, rounded angle which extends more than half the distance to base of elytra; behind this angular extension is another patch of white hairs extending to base of thorax. The portion of the prothorax behind the antebasal is rugose and shows no trace of a subbasal carina.

Elytra punctate-striate, the punctures coarse and shallow, shining, distinctly showing through the vestiture, which is recumbent. Vestiture of the sutural interspaces black with a mixture of white hairs. The remainder of the elytral vestiture is ferruginous, mixed with

1 Biologia Centrali Americana, Vol. IV, pt. 6, p. 305, 1906.

white except for the third, fifth, seventh and ninth interspaces, which have a larger intermixture of black hairs. The third and fifth interspaces are decorated with irregular tufts of elevated black hairs roughly in pairs and more numerous behind the middle. In the postscutellar region the surface is elevated and has two black tufts.

Pygidium densely covered with chalky-white recumbent hairs. Underside of body coarsely widely punctate, thinly covered with white hairs which are more thickly placed laterally.

Legs ferruginous with a piceous band at middle of femora and behind the middle of tibiæ, darker at the joints. Thinly clothed with white and black hairs. Length, 9 mm.; width, 3 mm.

The above species may at once be recognized by the large angulate backward extension of the antebasal carina on the thorax. It differs from *infuscatus* by its smaller size, shorter male antennæ and more numerous elytral tufts of erect hairs, and by the more pronounced whiteness of the front and thoracic areas.

Described from two male and four female specimens taken by myself near Patagonia, Arizona, July 9, 1930, on the dead branches of a large willow tree; also three females taken by Mr. E. Gorton Linsley at the same time and under the same conditions.

Holotype, a male, and allotype, female, Nos. 2977, 2978, respectively, in the collection of the California Academy of Sciences.

Paratypes in the above collection and that of Mr. E. Gorton Linsley.

The Norman R. Gunn Collection of Butterflies

Mrs. Joseph Gunn has presented to the California Academy of Sciences the collection of butterflies gotten together by her son, Norman R. Gunn, whose untimely death was noticed in the last number of this journal. There are 3300 specimens in this collection, a part of which are in papers and a part are spread for placement in Riker mounts. This makes a valuable addition to the Academy collection, including as it does a number of local races but poorly represented in the Academy series.—E. P. Van Duzee.

A Correction

Prof. Scullen has called my attention to an error on page 47 of Vol. VI of this journal (July 1929), where the reference for *Odynerus margaretellus* Rohwer should have read (Proc. U. S. Nat'l. Mus., XLIX, 242, 1915).—Editor.

A NEW APHODIUS AND A NEW GENUS AND SPECIES OF BUPRESTIDÆ FROM CALIFORNIA

BY H. C. FALL

Tyngsboro, Massachusetts

Aphodius davisi Fall, n. sp.

Small, oblong, moderately convex. Head piceous with paler margins; prothorax piceous, the lateral margins diffusely dull rufous; elytra yellow, checkered with subquadriform black spots; femora yellow, tibiæ and tarsi brownish; upper surface throughout polished and strongly shining.

Head anteriorly coarsely punctato-rugulose, closely punctate but smoother behind the frontal suture, which is perceptibly trituberculate; clypeal emargination distinct, limited each side by sharply defined subdentiform angulations which are not sinuate externally; genæ moderately prominent, rounded.

Prothorax three-tenths wider than long, only slightly narrower in front, sides feebly arcuate, hind angles well defined, somewhat obtuse; base arcuate, just perceptibly sinuate each side of the middle, marginal line very fine; disk sparsely finely punctate with still sparser intermixed much coarser punctures which, however, are somewhat more numerous at sides.

Elytra not quite as wide at base as prothorax, slightly widened posteriorly; striæ finely rather closely punctate; intervals nearly flat, finely sparsely punctate. The markings consist of three longitudinal series of alternating irregularly quadrate spots, each spot occupying the width of two interspaces. The first series is made up of three spots on intervals 2 and 3, the first spot subbasal; the next series of three on intervals 4 and 5 with first spot basal; the third series on intervals 6 and 7 has but two spots, these connected externally by a line on the eighth interval, which may extend forward to the humeral umbo and externally nearly to the margin.

Mesosternum not carinate between the coxæ; metasternum smooth and sparsely punctate medially, alutaceous and with coarser punctures at sides; abdomen alutaceous with a few fine punctures. Anterior tibiæ tridentate, crenulate above, smooth in front; hind tibiæ fringed at apex with unequal spinules; basal joint of hind tarsus not quite as long as the next three.

Length, 3.2 to 3.7 mm.; width, 1.55 to 1.9 mm.

Irvine Park, Orange County, California.

Described from ten examples sent me by Mr. A. C. Davis of Santa Ana, California, who with associates took them from

the nests of wood rats (Neotoma). The type is one of the smaller examples and is probably a male, although I observe no positive sexual differences in the series at hand; it bears date "2-1-30."

When not darkened by alcohol or otherwise this is a very pretty little species with its black thorax and bright yellow sharply spotted elytra. A slight tendency toward variability in maculation is observed, which might become more marked in a longer series.

By Horn's Monograph *davisi* runs to *serval* in Group "I-d." It agrees nearly with *serval* in clypeal outline and sculpture of the head, and in a general way in coloration; *serval,* however, is a larger species, the elytral maculation quite different in detail, the pronotal punctuation much less disparate, the legs uniformly reddish brown, the tibial spurs distinctly sexually modified.

The type and two paratypes have been retained for my own collection; the remaining paratypes are returned to Mr. Davis, in whose honor the species is named in recognition of generous contributions to my cabinet and years of pleasant personal acquaintance in California.

Hesperorhipis Fall n. gen. (Buprestidæ)

Sixty-four years ago (December, 1866), Dr. Leconte erected the genus *Xenorhipis* for a unique male specimen of a small Buprestide having flabellate antennæ. It has been stated by Horn (1882) and later by Kerremans that there is no other known instance of this type of antennæ throughout the entire family; it will therefore be of more than ordinary interest to announce that there has come to me recently from California a unique male of another very small Buprestide having similarly flabellate antennæ. In general makeup this species shows a close relationship with *Xenorhipis,* but in several respects is not strictly congeneric and I would, therefore, suggest for it the above new generic title. The chief differences are indicated below in parallel columns and these, combined with certain characters in the specific description, will constitute a sufficiently distinctive diagnosis of the new genus.

XENORHIPIS	HESPERORHIPIS n. gen.
Antennal rami beginning at the second joint.	Antennal rami beginning at the third joint.
Last joint of maxillary palpus scarcely or feebly narrowed apically, the tip broadly truncate.	Last joint of maxillary palpus ovate conical, the apex pointed or at most very narrowly truncate.
Elytra of normal length, the pygidium alone exposed.	Elytra shorter, the last five dorsal abdominal segments exposed.
Sides of metasternum with a large hairy depression or excavation.	Sides of metasternum not at all excavated or depressed.
Posterior coxal plates broad, scarcely narrowed externally.	Posterior coxal plates triangular, the hind margin strongly oblique.
Basal joint of hind tarsus but little shorter than the remaining joints taken together.	Basal joint of hind tarsus equal in length to the three following joints and constituting scarcely more than one-third the tarsal length.

Hesperorhipis albofasciatus Fall n. sp.

Very small, head, thorax and elytra of nearly equal width; length to tip of elytra 2.6 mm., to abdominal apex 3.25 mm., width of elytra at base barely 1 mm.

Color black, head and thorax with deep blue surface luster; elytra each with a transverse slightly oblique narrow parallel-sided white fascia just behind the middle, the two forming a very obtuse angle at the suture. Before the white fascia the elytra are of a brighter blue in a triangular area involving the entire width at base, the sides converging to the suture at the white fascia. Behind the fascia the elytra are black with barely detectable bronze luster. Body beneath black, faintly bluish; tibiæ and tarsi pallescent.

Antennæ (♂) dull testaceous, flabellate, almost precisely as in Horn's figure for *Xenorhipis* (Trans. Am. Ent. Soc., 1882, Pl. IV), except that the rami begin at the third joint.

Head almost as wide as the prothorax, front flatly convex, a vague longitudinal impression terminating above in a small vertical fovea; clypeus scarcely margined in front, very feebly so over the antennæ; surface densely, coarsely, shallowly reticulate. Eyes vertical, rather large but only moderately prominent.

Prothorax transversely quadrate, slightly more than one-third wider than long; sides parallel, a little rounded in front and just visibly sinuate posteriorly, hind angles sharply rectangular; base bisinuate; side margins fine, becoming subobsolete at the front angles; disk broadly flattened medially and with a slight trace of a postmedian transverse impression; sculpture same as on the head.

Elytra very little wider than the thorax, seven-tenths longer than wide, feebly narrowed posteriorly; not very densely but rather roughly asperately punctate except in the white fascia, which is straight, perceptibly impressed, extends slightly forward from the suture to the side margin, and is without visible sculpture.

Body beneath closely punctate; prosternum vaguely impressed medially, intercoxal process as in *Xenorhipis*, long, gradually narrowed, apex acute, sides not at all angulate. Ventral segments throughout coarsely punctate, last segment deeply roundly emarginate. Tarsi as in *Xenorhipis*, the third and fourth joints with short membranous lobes; claws nearly simple, a feeble obtuse subbasal angulation.

The unique representative of this remarkable little species was beaten from mistletoe at Fort Tejon, California, VIII-3-30, by Mr. A. C. Davis, and was one of a box full of miscellaneous things sent me for identification. Mr. Davis writes me that he made strenuous efforts to obtain further specimens, but without success. The type remains in my collection.

Argyresthias Found in Golden Gate Park, San Francisco

There are four species of these small golden or silvery moths found in this locality, and their differences may be summed up in the following synopsis.

A. *Argyresthia pilatella* Braun. Adult with 7-9 mm. wing expanse, dull silvery or grayish, a dark mark on the middle of the hind margin of the forewings; larva reddish, mining needles of *Pinus radiata* Don. from base; pupa in rough cocoon spun in contact with a needle or other substance.

B. *Argyresthia cupressella* Wlshm. Adult with 7-9 mm. expanse, wings golden, head tuft white; larva yellow green, ochreous head, mining in tips of twigs of *Cupressus macrocarpa* Hartw.; pupa in rough cocoon spun in contact with two or more surfaces (among twigs).

C. *Argyresthia trifasciæ* Braun. Adult with 6-8 mm. expanse, wings golden, head tuft brown; larva deep green, black head, pupa in smooth cocoon spun on one surface only (Larvæ collected from *C. macrocarpa* twigs).

D. *Argyresthia franciscella* Busck. Adult with 8-9.5 mm. expanse, wings dull golden, almost smoky, and crossed by about three blackish lines, head tuft whitish; larva sordid brownish and found within terminal "cell" made of twigs of *C. macrocarpa*; pupa inside cell, no cocoon.—H. H. Keifer.

NEW POGONOCHERUS AND ECYRUS (COLEOPTERA, CERAMBYCIDÆ) WITH NOTES CONCERNING OTHERS

BY E. GORTON LINSLEY

Oakland, California

The *Pogonocherus* and *Ecyrus* are the most closely related genera of the *Pogonocherini,* and are classified by Leconte and Horn as the subtribe *Pogonocheri.* As there has been no major paper on *Ecyrus* in recent years, and since the last papers on *Pogonocherus* were in 1909,[1] 1910,[2] and 1913,[3] it seems advisable to bring these genera up to date in regard to recently acquired knowledge and the addition of new species. Appreciation is expressed to Dr. E. C. Van Dyke of the University of California for the loan of certain species discussed in this paper, and for reading the manuscript and offering many helpful suggestions. For the two excellent drawings, I am indebted to Mrs. Frieda Abernathy of Berkeley, California.

Pogonocherus Latr.

The members of this genus are separated from all the other genera which have heretofore been included in the tribe *Pogonocherini,* by the long flying hairs of the antennæ, legs, and body, and the presence of lateral tubercles on the prothorax. The species are nocturnal and are usually restricted to certain types of food plant. The adults are found, usually in the shade, on dead and dying twigs. Storm-broken branches and windfalls are especially attractive to them. The majority of the species are North American, although the genus is well represented in both Europe and Asia. The recent European writers have divided *Pogonocherus* into two groups, those species having truncate-emarginate elytral apices, and those having rotundate-truncate elytral apices. This classification can be conveniently followed in regard to the North American species, and is more nearly phylogenetically correct than the grouping used by Horn, Schaeffer, Fall, and Casey. L. M. Planet [4] places the species

1 Schaeffer, C. W. Four New Cerambycidæ, Journal New York Ent. Soc., XVIII, 1909, pp. 99-103.

2 Fall, H. C. New Species of Pogonocherus, Ent. News, XXI, 1910, pp. 5-9.

3 Casey, T. L. Memoirs of the Coleoptera, IV, 1913; Longicornia, pp. 345-349.

4 Planet, L. M. Hist. Nat. des Longicornes de France, Paris, 1924, pp. 280-289.

with emarginate-truncate apices in *Pogonocherus* (s. str.) and those with truncate or rotundate-truncate apices in the subgenus *Pityphilus* Muls. The use of subgenera for these two groups seems a trifle extreme, but the division is a convenient one to follow in forming a key, and is the method used in this paper. Leng, in his Catalogue of the Coleoptera of America North of Mexico, lists nineteen species of *Pogonocherus* (using the genus in its broadest sense), but upon close examination, there appears to be not more than fourteen known forms, including the one described in this paper, that are worthy of specific rank. The following table will separate the species:

KEY TO THE NORTH AMERICAN SPECIES OF POGONOCHERUS

Elytral apices emarginate-truncate (*Pogonocherus* s. str.) 1
Elytral apices truncate or rotundate-truncate, but not emarginate (*Pityphilus*) 6

1. Elytra with tufted subbasal tubercle; lateral tubercle of prothorax obtuse or blunt at apex 2
   Elytra without subbasal tubercle; lateral tubercle of prothorax acute at apex 3
2. Elytral apices distinctly spiniform, pubescence gray, flying hairs long. 6-10 mm. Northern California....(1) *crinitus* Lec.
   Elytral apices not spiniform, pubescence grayish brown, elytra with an oblique antemedian pale marking. 5.5-9 mm. California .....(2) *propinquus* Fall
3. Elytra with two or more postmedian subsutural tufts of erect black setæ. 6 mm. Southern Arizona....(3) *arizonicus* Schffr.
   Elytra without tufts of setæ 4
4. Elytra subcostate, antennal scape stout. 5.5-7.5 mm. Colorado, New Mexico,, Arizona.....(4) *pictus* Fall
   Elytra without costæ, antennal scape less stout 5
5. Prothorax about as wide as long; outer angle of elytral apices bluntly dentate; body with numerous suberect long hairs. 4.5-6.5 mm. Central and eastern North America.....(5) *mixtus* Hald.
   Prothorax fully one-half wider than long, outer angle acutely dentate; suberect hairs short or missing. 4.5-6 mm. Atlantic Coast.....(6) *salicicola* Csy.
6. Lateral tubercles of prothorax obtuse or blunt at apex 7
   Lateral tubercles of prothorax acute at apex 14
7. Elytra distinctly tricostate 8
   Discal costæ of elytra indistinct or evanescent at base; lateral costæ more or less evident 9

8. Elytra with a short extra humeral carina between lateral and median costæ; eyes with large callosities above; elytra two-thirds as wide as long. 8 mm. Southern Texas ..... (7) *vandykei* n. sp.
   Elytra without extra humeral carina; eyes lacking callosities; elytra only half as wide as long. 6-11 mm. Southern California ..... (8) *pilatei* Van D.
9. Prothorax with small shining tubercle on basal half of median line; elytra with large postmedian white spot, subsutural costæ with tufts of erect black setæ. 4.5-6 mm. Alaska, Canada, and eastern United States ..... (9) *penicillatus* Lec.
   Prothorax without median tubercle; postmedian elytral white spot never present 10
10. Elytra with a distinct antemedian yellowish brown V-shaped area; basal region blackish; lateral pubescence gray, costæ with a few subsutural tufts of short black hair in postmedian area. 6-8.5 mm. Southern Arizona ..... (10) *negundo* Schffr.
    Elytra lacking yellowish patch; either uniformly gray, gray and black, or with a distinct postmedian black band 11
11. Elytra with a distinct postmedian black band 12
    Elytra more or less uniformly gray, black markings when present either vague, basal, or sutural 13
12. Postmedian black band broad at suture; discal tubercles of prothorax indistinct. 6-8.5 mm. California, Oregon, Idaho, and Colorado ..... (11) *oregonus* Lec.
    Postmedian black band narrowed at suture; discal tubercles of prothorax prominent. 6-9.5 mm. California ..... (12) *californicus* Schffr.
13. Body generally clothed with a uniform gray pubescence, sometimes with a vague postmedian black bar, or with a velvety black V-shaped postscutellar patch extending backwards as a sutural vitta which generally dilates into a more or less triangular area in apical region; series of small black tufts of hair on elytra often present but never forming four series. 6.8 mm. Central California ..... (12a) *californicus concolor* Schffr.
    Body clothed with blackish and ashy-gray hairs, the latter predominating, especially in the antemedian discal elytral area, the elytra also with four series of small black tufts of short hairs, the inner series close to the suture. 7-9 mm. Northern Arizona ..... (13) *obscurus* Fall
14. Antennal scape long, slender, attaining lateral thoracic tubercle; body clothed with a dense pale brown pubescence, elytral apices, sides, and basal area darker brown; median elytral area gray; flying hairs long. 5-8 mm. Lower California ..... (14) *volitans* Lec.

(1) POGONOCHERUS CRINITUS Lec.

This is one of the largest and most distinct *Pogonocherus*. It is more closely related to certain European species, especially *perroudi* Muls, than to any North American form. It is of a general gray color with very long flying hairs on antennæ, legs, and body, and is easily separated from the other members of the genus by the acute apical spine of the elytra and the prominently crested subbasal tubercles. It is found throughout the coastal mountain ranges of California from Monterey County to Mendocino County, and is recorded in literature from Vancouver Island, B. C. Host plant, *Quercus agrifolia* Neé.

(2) POGONOCHERUS PROPINQUUS Fall

Although somewhat resembling *penicillatus* Lec., this species is separated by the emarginate elytral apices and the obliquely set elytral pale markings. Although described from southern California, it is more commonly found in the northern and eastern portions of the state. Its range is continuous from the mountains of Oregon and northern California, through the Sierra Nevadas, to the San Bernardino Mountains on the south. It is normally taken at high altitudes on the western yellow pine, *Pinus ponderosa* Laws.

(3) POGONOCHERUS ARIZONICUS Schffr.

This species is closely allied to *P. mixtus* Hald. and *P. pictus* Fall. It differs from them in having two or more postmedian tufts of erect black setæ on the subsutural costæ of the elytra. Mr. Schaeffer, in his original description of the species, states that there are three such tufts. A specimen collected by the writer in the Huachuca Mountains, Arizona (type locality), has only two tufts of setæ, although it agrees with description in all other respects. Neither *mixtus* nor *pictus* have tufts of setæ and are therefore easily separated from *arizonicus*. The last differs from *penicillatus*, the only other species with such conspicuous tufts, in having emarginate elytral apices and in entirely lacking subbasal elytral tubercles. Habitat, the mountainous regions of southern Arizona, probably on pine.

(4) POGONOCHERUS PICTUS Fall

In this species the elytral apices vary greatly as to truncation and dentation. Colonel Casey in his description of *emargi-*

natus (later stated by its author to be a synonym of *pictus*), speaks of the elytral apices as narrowly and deeply sinuate, and the sutural tooth as longer than the lateral tooth, which he describes as sharply marked but not prolonged. Certain specimens before me from Long's Peak Inn, Colorado (Van Dyke collection), lack the lateral tooth entirely, while others in the same series agree with Colonel Casey's specimen. A specimen from the Catalina Mountains, Arizona, is at the other extreme, with a well-defined lateral tooth and a poorly developed sutural tooth. The general color pattern of *pictus* is similar to *mixtus* Hald from which it may be separated by its larger size, subcostate elytra, and stout antennal scape. It is typically a Rocky Mountain species, ranging from Montana and Colorado, down into Arizona and New Mexico. *P. fastigiatus* Csy. is merely a variation of *pictus* Fall.

(5) POGONOCHERUS MIXTUS Hald.

This is one of our smallest species. The prothorax is about as wide as long, color black to piceous, with large pale elytral markings. The punctuation of the prothorax and elytra is very variable. The species is widely spread throughout eastern and northern North America on both coniferous and broad-leaved trees. *P. parvulus* Lec. is merely a small form of *mixtus*. *P. simplex* Lec. was placed by Fall, after a critical examination of the type, as a synonym of *mixtus*. This fact seems to have been overlooked by Casey, although the latter's paper was published three years later than Fall's. Leng, in his Catalogue of the Coleoptera, followed the latest writer and included *simplex* in his list. The species should, however, remain as a synonym of *mixtus* Hald.

6. POGONOCHERUS SALICICOLA Casey

(*P. salicola* Casey [5])

The size, color pattern, and superficial appearance of this species is very similar to *mixtus* Hald., although the wide pro-

5 When Casey first described this species in 1913, he had in mind the fact that it is found on Salix, but the name given to it, salicola, unfortunately gives a meaning very different from that intended by its author. Five years after Casey's description, Mr. F. J. A. Morris, in the Canadian Entomologist, Vol. 50, p. 41, pointed out the error in the Latin stem of the word. Soon after the publication of Mr. Morris' article, Casey, in Vol. 8 of his Memoirs of the Coleoptera (p. 415, 1918), changed the name to salicicola, stating that the original spelling was a misprint. Under the rules of nomenclature, salicicola will be valid.

thorax, the acute apical denticles of the elytra, and the scarcity of erect black hairs on the body, easily separate it. It is found throughout the Atlantic States on willow, *Salix*.

(7) **Pogonocherus vandykei** Linsley, n. sp.

Robust subcylindrical, piceous, clothed with a rather sparse, short, gray and brown pubescence, with a few longer, scattered flying hairs, on antennæ, legs and entire upper surface. Head broad, distinctly quadrangular when viewed from the front, longitudinally sulcate between the antennæ; eyes reniform, lower portion subtriangular, with large callosities above. Antennæ, annulate, longer than body; scape stout. Prothorax, wider than long, about two-thirds as wide as elytra at base; lateral and discal tubercles, large, obtuse. Scutellum, white. Elytra about three-fifths as wide as long, tricostate, with a short extra humeral carina between median and lateral costæ; subsutural costa elevated near base into a large tubercle, prominently crested with long black hairs, and again in postmedian area into a ridge of small black tufted tubercles; median costa with a series of similar but smaller tubercles in same region; apices truncate; general color pattern, grayish brown, with a lunate patch of gray pubescence extending from humerus to suture at middle, and margined posteriorly with an irregular black line; also with a row of yellow hairs along inner two costæ in antemedian gray area; apices gray; subbasal tubercles connected with a narrow black line. Beneath, clothed with a sparse gray pubescence. Underside of tarsi padded with soft yellow hairs. Length, 8 mm.; breadth, 3 mm.

Type (No. 2979, Mus. Calif. Acad. Sci.), a unique, probably a female, collected by the writer at Uvalde, Texas, June 13, 1930. I take pleasure in naming this species after Dr. E. C. Van Dyke, as a slight tribute for many favors.

In this species the elytra are much shorter in proportion to the total length of the insect, and the subbasal tubercles much more prominently crested than is the case in any other of the known forms. The former character gives the species a short robust appearance that is quite distinctive. The general color pattern is very similar to that of *pilatei* or *californicus*. The general body proportions, the extrahumeral carina, and the less rotundate elytral apices, will, however, easily separate it from either of these two species. It further differs in the large callosities above the eyes, the sparse pubescence, and the presence of two rows of yellow hairs along inner two costæ in the antemedian gray area of the elytra.

(8) Pogonocherus pilatei Van Dyke

The average size of this species is greater than the average size of any other known *Pogonocherus*. It differs from all other species in the second group except *vandykei* in having distinctly tricostate elytra. The characters given above will separate it from the latter species. It is found in the foothill regions of southern California on the peculiar shrub *Fremontodendron californicum* Torr.

(9) Pogonocherus penicillatus Lec.

This is a grayish-brown species with a large white spot on each elytron and tufts of erect black setæ on the discal elytral costæ. There is also a small shining tubercle on the median line of the prothorax. It is distributed throughout eastern United States, Canada, and Alaska. After critically examining Schaeffer's description of *P. alaskanus* as well as many typical specimens of the species, the only character that I can find to separate it from *penicillatus* Lec., is the rounded elytral apices. However, examination of a series of each of these species shows this character to be inconstant. Certain specimens from Fort Yukon and Rampart, Alaska, the same general territory in which typical *alaskanus* is found, have definitely truncate elytral apices, which would classify them as *penicillatus* and from which they cannot be separated. Other specimens from eastern United States have rotundate-truncate apices as found in *alaskanus*. With extreme and intermediate phases to be found in both regions, and since there seems to be no other character with which to separate these forms, I am convinced that *alaskanus* Schffr. is merely a variant of *P. penicillatus* Lec. *P. carinatus* Csy. is an intermediate phase between typical *penicillatus* and the form *alaskanus*. It was described from a specimen taken in Colorado, the western limit of the range of *penicillatus*.

Pogonocherus fasciculatus De Geer

This European species is listed from Greenland in our literature, but since this locality has remained unverified, I have not included it in the table. In the key it would run to *penicillatus*, which it superficially resembles but from which it can be separated by the indistinct subbasal tubercles of the elytra and

the more acute lateral spines of the prothorax. Five to seven mm. Europe and Greenland (?).

(10) POGONOCHERUS NEGUNDO Schffr.

In this species the elytra have an oblique yellowish-brown band which extends from the lateral margin in the subhumeral region to the suture at middle. The basal elytral area is much darker. The species is closely allied to *californicus* Schffr. from which it differs in the general color pattern and the less distinct longitudinal sulcus between the antennæ. It is found on box elder, *Acer negundo* Linn., in the Huachuca Mountains of southern Arizona.

(11) POGONOCHERUS OREGONUS Lec.

This species is closely related to *californicus* Schffr. and differs from it in having the postmedian black band of the elytra about as broad at the suture as at the lateral edge. In addition, the discal prothoracic tubercles are much less distinct. This is an alpine form, most commonly taken in the high mountains from Tulare County, California, to Mount Hood, Oregon. Specimens in the Van Dyke collection from British Columbia and Mount Timpanogos, Utah, show that the distribution continues up the Pacific Coast and back down the western ranges of the Rocky Mountains. This species is always taken on the true firs, *Abies*.

(12) POGONOCHERUS CALIFORNICUS Schffr.

Typical specimens of this species are characterized by having a gray antemedian V-shaped area on the elytra, a saddle-like postmedian black band narrowed at the suture, and the subbasal elytral tubercles crowned with tufts of black hair. It is usually found in the high mountains of northern and eastern California on the western yellow pine, *Pinus ponderosa* Laws, and in Arizona on *Pinus edulis* Engln. and *Pinus jeffreyi* Vasey.[6]

(12a) POGONOCHERUS CALIFORNICUS CONCOLOR Schffr.

This is a very distinct subspecies of *californicus*. It is extremely variable within the subspecies, but is easily separated from the typical form, which is quite constant as to color. The

[6] Webb, J. L. Proc. Ent. Coc., Washington, Vol. X, 1908, p. 119.

form *concolor* varies from a uniform gray, through a phase suggestive of typical *californicus,* but much lighter, to a very divergent form with velvety black pubescence along the suture. In addition, typical *californicus* is a high altitude form taken on the western yellow pine, whereas *concolor* is always found in the dry foothill regions on the Digger pine, *Pinus sabiana* Dougl.

(13) Pogonocherus obscurus Fall

This species is very close to *californicus* Schffr., especially to its subspecies *concolor* Schffr. The last differs from Fall's description of *obscurus* in one point only, namely, that *obscurus* is stated to have four series of small black tufts of short hairs on the elytra. In a series of twenty-four specimens of *concolor* from Tulare County, California, a number of individuals have more than one series of such tufts, several have only one series, and many lack the tufts of hair altogether. In none of the specimens before me, however, are there four series. Up to the present time, *concolor* has only been taken in the Sierra foothills on *Pinus sabiana,* but *californicus* has been taken in Arizona on *Pinus edulis* and *P. jeffreyi.* Fall's specimens of *obscurus* were taken in a region where pine is abundant. Although I have not seen *obscurus,* I am inclined to believe from Fall's description that when a series of the *concolor* variety of *californicus* is examined with a series of *obscurus,* the two may be found to run very near together. Type locality of *obscurus,* Bright Angel, Arizona.

(14) Pogonocherus volitans Lec.

The long slender antennal scape of this species easily separates it from the other members of the genus, although the color pattern is somewhat suggestive of *negundo* Schffr. So distinct is the antennal scape of this species that its author first placed it in another genus. All other characters are, however, typically those of *Pogonocherus.* Type locality, Cape San Lucas, Lower California.

Ecyrus Le Conte

The members of this genus are confined to eastern and southern North America, and differ from *Pogonocherus* in having a feebly rounded prothorax without lateral tubercles. The antennæ are clothed along the inner side with flying hairs

which may or may not be present on legs and body. There appear to be only two valid species, including the one described in this paper, that are found within the United States. A third species from the West Indies and a questionable form from Mexico bring the total of recognizable species up to four. These may be separated as follows:

Key to the North American Species of Ecyrus

Prothorax with two large, laterally compressed, discal tubercles; elytra with two more or less prominently crested subbasal tubercles 1

Prothorax without large discal tubercles; subbasal area of elytra more or less evenly convex 2

1. Discal tubercles of prothorax prolonged backwards into a distinct horn, discal area with large quadrangular patch of white pubescence; elytra and upper surface clothed with long flying hairs, pubescence brown and white. 5-6.5 mm. Southern Texas ..... (1) *cornutus* n. sp.

   Discal tubercles of prothorax not prolonged backwards into a horn, discal area clothed with tawny-brown pile; elytra and upper surface without flying hairs, pubescence blue gray. 13 mm. West Indies ..... (2) *hirtipes* Gah.

2. Elytra with three black lines of hair pencils; anterior discal area of prothorax broadly convex, finely tuberculose. 8-11 mm. Mexico ..... (3) *penicillatus* Bates

   Elytra without definite hair pencils; prothorax more or less evenly convex. 6.5-11 mm. Atlantic Coast and Gulf States from Canada to southern Mexico ..... (4) *dasycerus* Say

(1) **Ecyrus cornutus** Linsley, n. sp.
(Figs. 1 and 2)

Robust, subcylindrical, color varying from brown to piceous, clothed with a rather dense, short, closely appressed pile, in addition to numerous suberect long hairs. Head transversely impressed between the eyes and longitudinally sulcate between the antennæ; pile brown at base of antennæ, white on face and mouth parts. Antennæ annulate, slightly longer than the body in female, distinctly longer in male; scape stout, second segment about as long as wide, third about five times as long as second, fourth about one and one-third as long as third, fifth about one-third as long as fourth, sixth and following segments diminishing in length toward apex. Prothorax two-thirds as wide as elytra at base, about as wide as long, without lateral spines, sides slightly arcuate; disk convex, with a laterally compressed tubercle arising from each side, which is prolonged backwards into a distinct horn; discal area clothed with a short dense white pubescence, supplemented laterally with longer

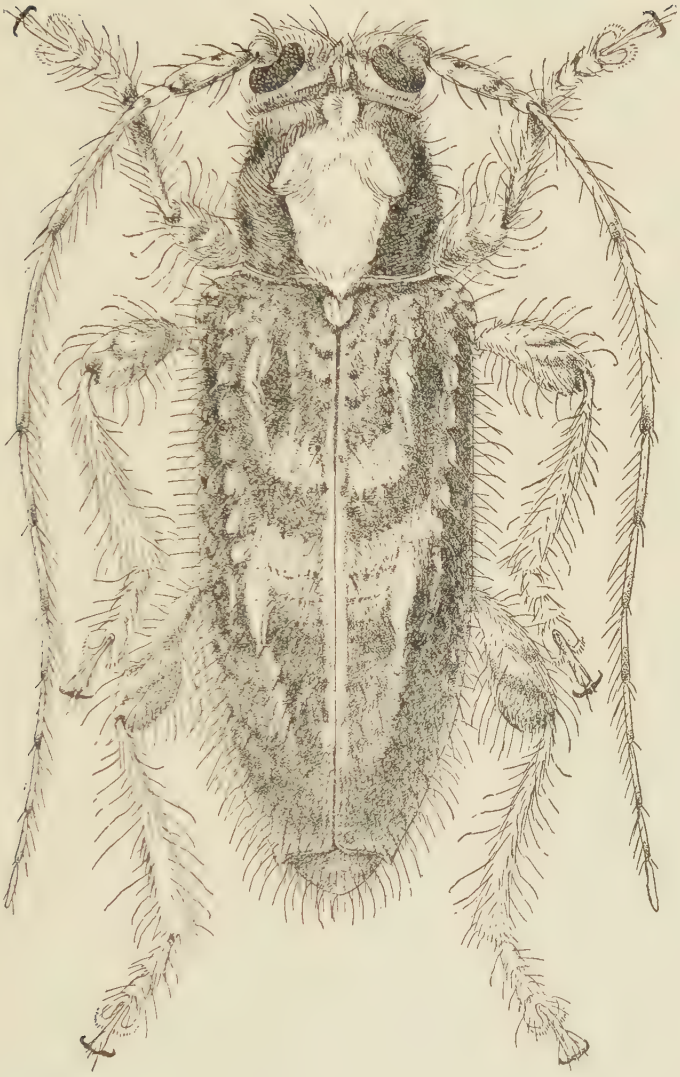


Fig. 1. Ecyrus cornutus Linsley

brownish hairs. Scutellum white. Elytra twice as long as wide, basal portion of disk somewhat depressed; third interval elevated near base into an elongate tubercle and again near middle into an elongate ridge which gradually diminishes toward apices; also a secondary ridge extending from humerus in an arcuate manner to almost unite with median ridge at middle; enclosed within this ridge is a lunate patch of white pubescence extending from third interval to sutural margin, and a second smaller patch just posterior to subbasal tubercles, lateral slope of ridge with two postmedian black spots. Elytral intervals somewhat flattened, with a scattering of minute tufted tubercles throughout; apices truncate-emarginate. Basal area of elytra generally brown; beneath, sides, and elytral apices, gray. Underside of third tarsal segment clothed with pale-yellow hairs, the first and second segments clothed with darker, brownish hairs. Length, 6 mm.; breadth, 2.5 mm.

Holotype, male (No. 2980, Mus. Calif. Acad. Sci.), and allotype, female (No. 2981, Mus. Calif. Acad. Sci.), and twelve paratypes in my own collection were taken by the writer at Brownsville, Texas, June 24 and 25, 1930. All of the specimens were beaten from dead willow branches and show little variation except in size (5-6.5 mm.).

This attractive insect, taken in the peculiar subtropical floral region of Brownsville, might at first glance be mistaken for a *Pogonocherus*. The absence of lateral tubercles on the prothorax, however, place it in *Ecyrus*. It differs from all the known species of the latter genus, in the elytral sculpturing, and in being entirely covered with long flying hairs. In all of the described forms of *Ecyrus* these hairs are more or less evident on the legs and antennæ, but in no other case are they found on the upper surface of the body as in *cornutus*. In the latter character, which gives the species the appearance of a *Pogonocherus*, it differs from Le Conte's original description of *Ecyrus*, but as it seems to be congeneric in all other respects, I have placed it in this genus. The species shows a relationship to the West Indian, *E. hirtipes* Gahan, in the presence of discal prothoracic tubercles, but the shape of these tubercles, elytral sculpturing, size, and general color pattern, easily separate it. *E. cornutus* is also very distinct from *E. dasycerus* Say, differing in the large discal horns of the prothorax, the prominent subbasal elytral tubercles, and the long flying hairs covering the entire surface. The average size in my series of *cornutus* is 6 mm.

Fig. 2. Side view of Ecyrus cornutus Linsley

(2) Ecyrus hirtipes Gahan [7]

This species was described from Grenada, West Indies. The average size, 13 mm., is greater than that of any other species of the genus. It is of a general bluish gray color, with flying hairs on antennæ, legs, and undersurface. The elytral costæ are more or less distinct throughout, the median one raised to form a tufted tubercle in subbasal region. The species is very distinct and may be further separated by the characters given in the key.

(3) Ecyrus pencillatus Bates [8]

This species was described by Bates, from Vera Cruz, Mexico. It is evidently very close to *E. dasycerus* Say, the range of which extends well into Mexico. The author states that the anterior discal area of the prothorax is broadly convex and finely tuberculose, but this condition is also found in certain variations of *dasycerus*. The presence of hair pencils on the elytra, although sometimes suggested in *dasycerus* (as in variety *fasciatus* Ham.), may be a good character, but until a series of this species can be critically examined in connection with a series of *dasycerus*, the correct standing of this species cannot be determined. Size, 8-11 mm.

(4) Ecyrus dasycerus Say

This species is commonly found along the Atlantic coast and in the Gulf states, extending into Mexico. It is very variable, especially in the southern portion of its range, and many forms and variations have been named. It ranges in size from 4-11

[7] Gahan, C. T. Longicorn Coleop., West India Island, Trans. Ent. Soc., London, 1895, p. 127.

[8] Bates, H. W. Biologia Centrali Americana, V, 1880, Longicornia, p. 137.

mm., and in color from cinereous in the more typical forms to silvery white in the variety *fasciatus* Ham. The flying hairs, although moderate on antennæ, are very short or missing on legs and body.

(4a) ECYRUS DASYCERUS FASCIATUS Hamilton

I have before me a number of specimens of a light-colored phase of *dasycerus* from Florida, collected by Mr. J. N. Knull (Miami), and Mr. W. S. Blatchley (Royal Palm Park), that agree with Hamilton's description of *fasciatus*. The only character that I can find in them or the description that will separate *fasciatus* from the typical *dasycerus* is the whiter pubescence. The other characters mentioned by Hamilton, such as the three large tufts of coarse black bristles and the different type of thoracic punctuation may also be found in a series of the typical *dasycerus*. After critically examining a long series of *dasycerus* as well as a number of probable *fasciatus*, in connection with Hamilton's description, I am convinced that the latter is nothing more than a color variety of *E. dasycerus* Say.

(4b) ECYRUS DASYCERUS TEXANUS Schffr.

Although the description of this variety is rather indefinite, the author states that it differs from the typical form in the presence of two postmedian elytral fasciæ. Such fasciæ are vaguely seen in *fasciatus* as a part of the general color scheme. A series of specimens taken by the writer at Brownsville, Texas (type locality of both *fasciatus* and *texanus*), have these fasciæ indistinctly formed, but in all other respects they agree with the typical *E. dasycerus* Say.

(4c) ECYRUS DASYCERUS ARCUATUS Gahan [9]

An examination of the original description of this species as well as the illustration accompanying it, shows it to be very close to *E. dasycerus*, especially the variety *texanus* Schffr. As there seem to be no characters to separate it from *dasycerus*, except the large white spaces on the elytra, which, as mentioned above, are seen in certain variations of the latter species, I have placed it as a variety. Should it later prove to be the same as the variety *texanus*, *arcuatus* would have priority.

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[9] Gahan, C. T. Longicornia of Mex. and Cent. Am., Trans. Ent. Soc., London, 1892, p. 259.

ASHMEAD'S GENUS POLISTELLA (HYMENOPTERA, VESPIDÆ)

BY J. BEQUAERT

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In 1904 (Proc. U. S. N. Mus., XXVIII, p. 133), Ashmead proposed the new generic term, *Polistella,* for *Polistes manillensis* H. de Saussure, of the Philippines, giving the following characters to separate it from *Polistes* Latreille: "Metathorax smooth, not transversely striate; abdomen fusiform, subpetiolate; second cubital cell very small and narrow, along the cubitus hardly one-third the length of the third, receiving both recurrent nervures close together; eyes extending to base of mandibles." I have long been at a loss to place this genus, since some of its characters are found in *Polistes,* while others (such as the peculiar venation) could hardly be expected in the Polistinæ. Ashmead's figure of his *"Polistella manillensis"* (Pl. I, Fig. 1) looks more like one of the Polybiinæ, though it is quite different from any Oriental member of that subfamily known to me. In the "Revision of the Vespidæ of the Belgian Congo" (1918, Bull. Am. Mus. Nat. Hist., XXXIX, p. 255), I was unable to reach any definite conclusion regarding the status of *Polistella.*

During a recent visit to the United States National Museum, I had the opportunity to examine the material used by Ashmead to draw up his generic description. I was greatly surprised to discover that his insect was not one of the Polistinæ, nor in any way related to *Polistes,* but one of the Neotropical Polybiinæ.

The material comprises two females (or workers), one well preserved, the other lacking the abdomen, but both of the same species. They bear no locality labels, but are marked "Collection Fitch," and one of them has a label in Fitch's handwriting: "Smaller maribaudes, April 15, '56." Each pin in addition carries a small diamond of red paper. In attempting to trace the origin of these specimens, I was told by Mr. H. S. Barber that, in Fitch's original collection, a red piece of paper placed on a pin seemed to indicate an insect of Neotropical origin. This supposition is strengthened by the reference to

"maribaudes," which is a vernacular name applied in the Guianas to some of the social wasps. The name is mentioned by many writers, usually in a corrupted form. In Surinam, for instance, it becomes "marribu" (Christ, 1791, Naturgesch. Ins. Bienen, Wespen u. Ameisengeschl., p. 217), "malebonze" (Fermin, 1769, Description de la Colonie de Surinam, II, p. 300), "marybons" or "marribons" (M. Houttuyn, 1768, Linnæus' Natuurl. Historie, I, 12, p. 259); while in British Guiana the word "marabunta" is in common use (J. Rodway, 1894, In the Guiana Forest, p. 60).

As a matter of fact, the specimens which Ashmead called *"Polistes manillensis"* are nothing but the common and widely distributed South American *Protopolybia sedula* (H. de Saussure). A careful comparison with specimens of the latter fails to disclose any differences of specific value. Moreover, all the generic peculiarities of *Protopolybia* are present, including the characteristic shape of the postscutellum, the hind margin of which is angularly produced into the propodeum. It seems strange that Ashmead should have recognized *Polistes manillensis* in these specimens, since they do not in any way agree with de Saussure's description. They are, moreover, much too small (length, h. + th. + t. 1 + 2: 4.5 mm.; spread of wings: 9 mm.); for de Saussure's measurement of length of *P. manillensis* (8 mm.) includes only the head, thorax and first two abdominal segments, while he gives 19 mm. as the spread of the wings.

The question now arises as to what should be done with the generic name *Polistella*. At present there is no agreement among taxonomists as to what is the true genotype when a generic name has been based upon misidentified specimens.

The majority of American entomologists seem to accept the printed designation of the genotype as binding, regardless of the characters given in the generic description and of the identity of the specimens used by the author. I personally favor this method, which in the case under consideration will place *Polistella* Ashmead (genotype by monotypy: *Polistes manillensis* H. de Saussure, 1853) in the subfamily Polistinæ. Its exact status there (either as a synonym or a subgenus of *Polistes*) will be decided by a further study of the type of *P. manillensis*. That species was originally described from a male at the British

Museum. It does not seem to have been recognized since de Saussure, although Meade-Waldo mentioned that *Polistes flavobilineata* (Cameron), described as *Icaria,* was very closely related to *P. manillensis.*

If one argues, however, that the identity of Ashmead's specimens must settle the matter, *Polistella* Ashmead (1904) would take precedence over *Protopolybia* Ducke (1905, Revue d'Entomologie, XIV, p. 17), in the subfamily Polybiinæ. This would be a most unfortunate change for which I do not feel there is any justification, considering that Ashmead not only failed to recognize the true characters and affinities of his specimens, but made an erroneous specific identification, in addition to a bad guess as to the country of origin.

Ashmead's claim that his *"Polistella manillensis"* is the "smallest social wasp known in the world," loses much of its flavor in view of the fact that several other species of *Protopolybia* are equally small, while some specimens of *Leipomeles lamellaria* (Moebius) may be even smaller.

A NEW SUBSPECIES OF PLEBEJUS ICARIOIDES BDV.

BY R. F. STERNITZKY

Plebejus icarioides moroensis Sternitzky, n. subsp.

Differs from *Plebejus icarioides* var. *evius,* the closest allied variety by the difference in the ground color of the superior surface, which is true blue, lacking the violet hue of *evius.* The series of this variety compared with a lengthy series of *evius* shows a decided difference in size, being much smaller than the latter.

Male: The blue ground color fuses gradually into the black marginal border, which becomes darker toward the apex of the primaries. The secondaries have this dark color present along the costal margin, gradually fading away as it approaches the anal portion of the wing. Submarginal spots between the median nervules present. On some specimens there is a slight indication of a black discal cell spot. Wing fringes white.

Inferior surface bearing a surprising resemblance to *Plebejus pheres* Bdv. A row of six spots between the limbal and discal area prominent, as is the discal cell spot. These are bordered by white scales. The sixth spot, closest to the inner margin, is a double eye

spot, and on all specimens at hand this peculiarity is constant. A submarginal row of six other black spots is also present. These are small, tending to obliteration toward the apex of the wings, and the sixth inner marginal spot again tending to twin.

On the secondaries the six spots between the discal and limbal area are well obliterated by white scales showing only indications of black centers, except the one closest the costal margin which has a well-defined black center in all specimens before me. Two other spots situated between the basal and discal area are less constant and appear as white spots in some specimens, while in others the black centers are present. The white discal cell spot is large and irregular. A submarginal row of seven white spots with minute dark centers is also present. Ground color of wings silver gray.

Female: Ground color, superior surface of wings blackish brown, heavily powdered with blue scales toward the base. Black discal cell spot present. On the primaries a distinct submarginal band of light buff, which gradually fuses into the ground color, is always present. The intensity varies in the specimens before me, and the buff color has a tendency to fade into the dark brown ground color toward the apex. On the secondaries the band tends to divide into spots with dark centers, the one between the median veins one and two being most prominent. Inferior surface as in males, with the exception that the ground color takes on a creamy appearance and the black spots of the primaries are somewhat accentuated.

Wing expanse, 27 mm.

Specimens taken by the author at Moro Beach, San Luis Obispo County, California, June 27, 1929, on the blue flowering beach lupin.

Holotype, male (No. 2982), allotype, female (No. 2983), and three male and three female paratypes, deposited in the California Academy of Sciences; two males and two females in the Southern California Academy of Sciences, and fifteen male and eleven females, paratypes, in the author's collection.

OBSERVATIONS ON TWO CALIFORNIA BEETLES

BY HOWARD HINTON

Velgus Californicus Horn.—While collecting near Riverton, El Dorado County, California, during August 1930, I was attracted to three fire-killed sugar pines which were badly infested with termites. Beneath the loose bark and at the base

of the trees in the damp, rotten wood and termite castings all stages of this insect were to be found. The pupæ were lying in small hollows which looked as if they had been made out of the castings. Remains of adults found in the neighborhood seemed to indicate that at least two broods had developed here.

Diphyllostoma nigricollis (Fall).—One day in the latter part of June while collecting from the power company's canal near Riverton, I noticed many of these Luncanidæ floating by. Believing that they were rare, I settled down to collect and took about fifty. The next day I collected more and thereafter at weekly intervals collected others, until the latter part of August. They were most numerous from nine to eleven o'clock and increased from day to day until toward the last of July, when they diminished rapidly in numbers. On one day in July, I caught 112 specimens. I believe that all of these specimens had fallen into the water and that, because of the rapid current, none had escaped.

NOTE.—These observations by Mr. Hinton, a wide-awake young Junior College student, are most important. *Valgus californicus* Horn has been known for a long time to be more or less associated with termites. The above observation shows that though somewhat a general scavenger in rotting pine or fir wood, it has a decided preference for the areas where the termite castes have collected, in this regard resembling the European rose chafer, *Cetonia aurata* L. and the species of our own genus *Cremastochilus* which pass their early existence in the nests of ants.

The genus *Diphyllostoma* Fall is a most peculiar one. It contains two species, *fimbriata* Fall and *nigricollis* Fall, both first captured by Ralph Hopping; the first near his old home at Kaweah, the second in Fresno County. These specimens were taken, if I remember correctly, while flying or resting on the grass and at dusk. During May and June, 1929, and again in late May, 1930, numbers of the first species were taken by my students and myself from the flumes of the power companies situated just below the entrance to the Sequoia National Park. We had believed that they were dusk flyers. Mr. Hinton's observations seem to indicate that they prefer the heat of the day. All specimens so far taken have been males. Is the female flightless like the females of *Pleocoma, Anorus, Euthysanuis* and *Zarhipis*?—Edwin C. Van Dyke.

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Editorial Comment

On a preceding page of this number of the Pan-Pacific Entomologist Dr. Bequaert brings up a point in nomenclature that it seems to me requires further consideration. He says: "The majority of American entomologists seem to accept the printed designation of the genotype as binding, regardless of the characters given in the generic description and of the identity of the specimens used by the author." For some time there has become more or less apparent a tendency toward a blind worship of the *type* and a corresponding disregard of the *description,* with the claim that this is necessary for stability in nomenclature. This would be true if type labels were infallible, but they are far from that, and in the last analysis the only dependable element in nomenclature is the description. Recognizing this as a fact we have but one course to follow. A genotype must not *disagree* with the description of the genus, nor should a species type *disagree* with the species description. Errors of omission may be allowed to pass, but the type of a genus or species must possess the characters named in the description. A case in point is Chermes of Linnæus. He wrote "Pedes saltatorii," and thirteen of the fourteen species listed by him are saltatorial. Then, on the basis of elimination, someone named the fourteenth, a plant louse, as the type of Chermes, and many of our entomologists now have a genus of saltatorial plant lice that cannot jump. The same incongruity has occurred many times in the case of species. In the case of Polistella, mentioned by Dr. Bequaert, some clerk might some day inadvertently shift Ashmead's labels to another insect; then who could tell what Ashmead called *"Polistes manillensis"* and Polistella might find itself in the Ichneumonidæ. Stability is impossible unless we follow the description.